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# CallPilot

## Installation and Configuration

## Part 5: 1001rp Server Maintenance and Diagnostics

Product release 1.07 Standard 1.0 May 2000

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# CallPilot

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## Part 5: 1001rp Server Maintenance and Diagnostics


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# Chapter 1

# About this guide

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# Overview

## Introduction

*CallPilot Part 5: 1001rp Server Maintenance and Diagnostics* provides information and instructions for maintaining a CallPilot server, as well as troubleshooting tips for potential problems.

## Who should read this guide

This guide is for planners, administrators, technicians, and engineers responsible for maintaining a CallPilot server.

It includes information for installing, repairing, replacing, and upgrading hardware and software components. The guide assumes that the reader:

- has basic computing skills
- is familiar with necessary safety procedures
- has the hardware documentation provided by the manufacturer available as a reference
- is maintaining or troubleshooting an existing CallPilot server.

## Glossary and Related Guides

Part 1 of this binder contains a glossary and a list of related guides.

# Skills you need

## Introduction

This section describes the skills and knowledge you need to use this guide effectively.

## PC experience or knowledge

Knowledge of, or experience with, the following PC products will be of assistance when administering the CallPilot server:

- Microsoft Windows 95 or Windows NT
- client/server architecture
- Internet Protocol (IP)

## Other experience or knowledge

Other types of experience or knowledge that can be of use include:

- database management
- programming

# Structure of this guide

## Introduction

*CallPilot Part 5: 1001rp Server Maintenance and Diagnostics* defines the hardware and software diagnostic and recovery activities that a support technician should perform.

The first five chapters of this guide describe the tools that are available for identifying, diagnosing, and fixing hardware problems. If a problem is discovered, Chapter 6 provides procedures for removing the malfunctioning hardware component and upgrading or installing a new component.

If the problem is software-related, Chapters 7 and 8 describe the procedures for installing the server software in a recovery situation.

Regular server maintenance procedures are described in Chapters 9 and 10.

If required, the procedures for uninstalling and reinstalling the server software are described in Chapters 11 and 12.

The last chapter provides procedures for recovering from a hard drive failure.

# Symbols and conventions

## Introduction

This section describes the symbols and conventions used in this guide.

## Symbols

You might encounter the following symbols in this manual.

**DANGER**

**Risk of electric shock**

Warns you of an immediate electrical hazard that, if not avoided, will result in shock, serious injury, or death.

**WARNING**

**Risk of personal injury**

Warns you of a situation in which you can be injured if instructions are not followed exactly as stated.

**CAUTION**

**Risk of equipment damage**

Alerts you to situations where data can be lost or damaged, equipment can be damaged, actions can result in service interruption, and productive time can be lost.

**ATTENTION** Provides information essential to the completion of a task.

**Note:** Describes the secondary results of procedures or commands, or special conditions under which a procedure or command must be used.

# Preparing for maintenance activities

## Introduction

Perform maintenance activities to ensure the proper functioning of your server or to fix any problems that occur. Before you begin any maintenance activities, collect the tools you need and follow recommended safety precautions.

This section discusses the tools and equipment required for performing maintenance procedures in the field. Recommended safety precautions for electrostatic discharge, handling cards, and handling your server are also included.

# Required tools and safety precautions

## Introduction

If you need to replace or upgrade any system parts, follow Nortel Networks tools and safety guidelines to prevent personal injury and damage to the server or replacement parts.

**WARNING**

**Risk of personal injury and equipment damage**

Field maintenance must always be performed by fully qualified, trained personnel.

## Maintenance tools and materials checklist

Use this checklist for the tools and materials you need to perform maintenance and diagnostics tasks.

| Check | Description |
|---|---|
| | Phillips cross-head screwdriver |
| | Standard slot-head screwdriver (1/4" and 1/2") |
| | Sidecutters |
| | Jumper removal tool or needle nose pliers |
| | Tape measure for determining cable lengths |
| | Tweezers |
| | Antistatic ESD wrist strap (recommended) |
| | Pen or pencil for writing notes, cable lengths, and cable identifications |
| | Flashlight for examining interior of chassis |
| | Cable tie wraps |

| Check | Description |
|---|---|
| | Pen or pencil for noting cable lengths and labeling cables |
| | Head-cleaning tape kit |
| | Cable identification labels |
| | Equipment log. This is used to record the model and serial number of the system, all installed options, and other information. |
| | Windows NT emergency disk. This contains the configuration data for Windows NT. |
| | Windows NT 4.0 Setup disks. The three disks are used for reinstalling the operating system. |
| | Microsoft DOS 6.20 disks. These three disks are used for reinstalling the operating system for maintenance and diagnostics. |
| | A package of blank disks. |
| | Intel Ethernet LAN Adapter Driver disk |
| | Keycode data. This governs what software features you will be installing. |
| | pcANYWHERE32 software. This will be used to allow remote access by Nortel Networks service. It is on the MAS 2.0 Operating System CD-ROM. |
| | RAID driver disk and configuration disk (optional) |

## Approved replacement parts

Before replacing any parts on your server, contact your Nortel Networks customer support representative for a list of approved add-in boards and peripheral devices. The use of non-approved replacement parts can cause serious system problems or void your Nortel Networks warranty.

## General safety

Nortel Networks recommends that you observe these safety guidelines as you work on your server:

- Plug the computer and peripheral devices into properly grounded power sources to prevent electric shock.
- Use a surge protector or uninterruptible power supply to protect your system from sudden increases and decreases in electrical power.
- Ensure that nothing rests on your server's cables and that cables cannot be tripped over or stepped on.
- Do not handle food or liquid around the server.
- Do not push any objects into the openings of your server.

## Safety precautions for working with your server

Observe these safety guidelines before removing the top cover of your server:

1. Turn off all peripheral devices connected to the server.
2. Turn off the system by using the push-button on/off power switch. Unplug the AC power cord from the system or wall outlet.
3. Label and disconnect all peripheral cables and all telecommunication lines connected to the I/O connectors or ports on the back of the system.
4. Provide electrostatic discharge (ESD) protection by wearing an antistatic wrist strap attached to the chassis ground of the system when handling components. Attach your wrist strap to any unpainted metal surface.

## Cooling and airflow

For proper cooling and airflow, always install the chassis top cover before turning on the system. You risk damaging system parts if you operate the system without the cover in place.

# Avoiding electrostatic discharge

## Introduction

Electrostatic discharge (ESD) can seriously damage component parts such as disk drives, boards, and other parts. Nortel Networks recommends that you perform the maintenance procedures described in this section at an ESD workstation.

## Antistatic wrist strap

If an ESD workstation is not available, provide some ESD protection by wearing an antistatic wrist strap. Ground the ESD wrist strap by attaching it to any unpainted surface on your system chassis.

## While you work

As you work inside the server, periodically touch an unpainted surface to discharge any static your body might have accumulated.

## Conductive foam padded in-boards

Expansion cards are extremely sensitive to ESD. After removing a card from its protective wrapper or from the system, place it component-side up on a conductive foam pad. If possible, use antistatic floor pads and workbench pads.

# Handling cards

## Introduction

Electronic components are sensitive to the environment and to electrostatic discharge. To protect equipment and prolong the useful life of components, Nortel Networks recommends that you follow the precautions described below.

## Avoiding electrostatic discharge

Electrostatic discharge (ESD) affects the performance and decreases the useful life of system components. Use caution when handling Error Code Correction (ECC) memory modules, SBC cards, and add-in boards to prevent damage. Wear an ESD wrist strap when handling system parts.

## Precautions for handling cards

Take these precautions with any procedure that includes an add-in board:

- After removing a board from its protective wrapper or from the server, place it component-side up on a grounded, static-free surface.
- Do not slide a board over any surface.
- Do not touch board components or gold-edge connectors on the board.
- Hold a board by the top edge, or by the side edges.

## Installing boards

When installing boards on the server, remember the following details:

- The backplane is flexible and supported with stand-offs.
- Board slots resist connector insertion.
- Firm, steady force seats a board in its slot properly.
- Boards seat with friction followed by a solid stop.
- External connector plates, attached to add-in boards, are seated in the rear panel and secured with a screw.

# Handling hard disks

## Introduction

Hard disks are extremely sensitive to vibration and physical shock. To protect equipment and prolong the life of hard drives, Nortel Networks recommends the following precautions.

## Avoid vibration or physical shock

Hard disks are susceptible to even slight vibrations. A hard disk can be damaged if it is placed on a table that is accidently knocked or moved. Use caution when handling hard disks to prevent damage.

## Precautions for handling hard disks

After removing a hard disk from its protective wrapper, or from the server, place it on an antistatic, padded workbench or workstation to avoid movement or jarring.

## Shipping damage

If your hard disk is shipped independently for either an upgrade or a replacement, note any dents or damage on the padded container and packaging. Keep the container to prove that the part was damaged during shipping and handling.

## Remove hard drives

The drives are hot-swappable and can be removed without a system shutdown.

## Store hard drives

If you purchase extra hard disks, store these hard disks in the original padded container. Store the disks away from places where they might be moved or jarred.

# Handling CD-ROM disks

## Introduction

When removing a CD-ROM disk from its protective case or loading a disk to a drive, hold it by its center hole and outer edge. Avoid touching the disk's data surface (the non-labeled side).

To protect a disk against scratches and dirt when not in use, keep it in its protective case.

## To load a CD-ROM disk

1. Press the eject button on the CD-ROM drive to eject the disk tray.
2. Place the disk on the tray with its labeled side facing up.
3. Press the eject button or gently press the front of the disk tray to retract the tray back into the drive.

## To eject a CD-ROM disk

1. Press the eject button on the CD-ROM drive to eject the disk tray.
2. Remove the disk from the tray and put it in its protective case.
3. Press the eject button or gently press the front of the disk tray to retract the tray back into the drive.

# Chapter 2

# Starting up and shutting down the server

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# Overview

## Introduction

This chapter provides procedures for

- turning on the peripheral devices and the server, and verifying proper startup. See "Starting up the server" on page 29.
- shutting down the server if you need to install, reinstall, or replace hardware components. See "Shutting down the server" on page 30.

# Starting up the server

## To turn on the system

1. Ensure the modem power switch is on.
2. Turn the monitor power switch on.
3. Press the server power switch on.
4. Observe the Power-On Self-Test (POST) and initialization messages as the server starts.

## Startup sequence

The following is the sequence for the server startup:

| Stage | Description |
|---|---|
| 1 | POST messages appear. |
| 2 | SCSI (or RAID) initialization messages appear. |
| 3 | Allow selection of Windows NT/DOS. |
| 4 | Server boots to DOS. Runs High Memory Test and PC Diags. |
| 5 | Server boots to Windows NT and displays the logon screen. |
| 6 | Press Ctrl + Alt + Delete. |
| 7 | Log on as the administrator with the appropriate password |

To interpret the POST beep codes that your CallPilot emits, refer to "Interpreting POST diagnostics" on page 38.

# Shutting down the server

## Introduction

Any time you need to power down the server, follow the procedure in this section.

## To shutdown the server

1 Press the Ctrl, Alt, and Delete keys simultaneously.

**Result:** The Windows NT Security dialog box appears.

2 Select Shutdown.

**Result:** The Shutdown Computer dialog box appears.

3 Select Shutdown.

4 Click OK.

**Result:** The Shutdown Computer window displays the message `It is now safe to turn off your computer`.

**a.** You might be informed that an SQLAnywhere service is running with connections, and asked if you want to end it.

**b.** Click Yes or End Task.

**Result:** You might also be asked if you want to save ACD proxy changes.

**c.** Click No.

# Chapter 3

# Diagnostics

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# Overview

## Introduction

This chapter includes the following information:

- Section A: "System diagnostics" on page 33 for running the confidence test
- Section B: "Startup diagnostics" on page 35 for help in interpreting the startup diagnostics on the 1001rp server
- Section C: "Performing Windows NT online diagnostics" on page 47 to help you use the run-time diagnostics provided by the Windows NT server software
- Section D: "Invoking and interpreting serial port diagnostics" on page 69 for running serial port diagnostics using the TSTERIO command

# Section A: System diagnostics

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# Running the confidence test

## Introduction

The following procedure and results are specific to the 1001rp server.

## To run the confidence test

1 Power on the server and observe the front panel display.

**Result:** All LEDs on the panel illuminate for a few seconds. The green power LED remains illuminated.

2 Observe the following server actions:

- Cooling fans on the front panel start up, and the red fault LED next to each fan extinguishes.
- Drives spin up, and the amber hard drive activity LEDs over the front panel display, extinguish, and then flash with activity.
- LEDs illuminate temporarily as the system checks the floppy drive, tape drive, and CD-ROM drive.
- The LED on each power supply lights up red as supply fans spin up and components charge. LEDs turn green when the attached power supply is fully operational.

3 Check the monitor as the server counts RAM and completes a Power-On Self-Test (POST).

**Result:** A descriptive prompt appears on the monitor.

# Section B: Startup diagnostics

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# Startup diagnostics overview

## Introduction

This module contains procedures for interpreting the startup diagnostics on the 1001rp server.

Startup diagnostics are available only when you boot to DOS or when you first install a system.

## Startup diagnostic classes

Two classes of startup diagnostics are available on the server:

- Power-On Self-Test (POST) diagnostics
- SCSI controller diagnostics

  or

- RAID controller diagnostics

These diagnostics are available at initial system startup, or after any 1001rp server reset.

# Power-On Self-Test diagnostics

## Definition

The Power-On Self-Test (POST) is a system diagnostic program (stored in the BIOS) that runs every time the 1001rp server is started. POST's function is to test system components and then display status messages.

## POST message formats

POST reports on the system status in three ways:

- POST beep codes
- POST error codes and messages
- countdown codes displayed during normal BIOS POST

# Interpreting POST diagnostics

## Introduction

This section provides an explanation of the POST diagnostic codes.

## POST beep codes

If an error occurs before video initialization, POST emits beep codes that indicate errors in hardware, software, or firmware.

A beep code is a series of separate tones, each equal in length. Write down the beep code sequence before calling Nortel Networks technical support.

**ATTENTION**

Some POST beep codes are fatal and require that you replace the SBC. See the table below for more information about beep codes.

| Beep sequence | Error message and conditions |
|---|---|
| 1-2-2-3 | Checksum the BIOS. |
| 1-3-1-1 | Verify proper refresh operation. |
| 1-3-4-1 | Test the DRAM address lines. |
| 1-3-4-3 | Test the base memory. |
| 1-4-1-1 | Test lower memory. |
| 2-1-2-3 | Verify that the copyright message is intact. |
| 2-2-3-1 | Check for any pending hardware interrupts (there should be none). |
| 1-2 | ROM checksum error; no/faulty video card. Initialize all ISA and PCI option ROMs. |
| 1 | One short beep before boot.<br>Beep the speaker. |

## POST error codes and messages

The BIOS indicates errors through POST by displaying a POST diagnostic code on the screen.

The following chart lists the on-screen POST error codes and messages:

| Beep code | POST code | Description / test point |
|---|---|---|
| 1-1-1-3 | 02 | Verify Real Mode |
| 1-1-2-1 | 04 | Get CPU type |
| 1-1-2-3 | 06 | Initialize System Hardware |
| 1-1-3-1 | 08 | Initialize chipset registers with initial POST values |
| 1-1-3-2 | 09 | Set in POST flag |
| 1-1-3-3 | 0A | Initialize CPU registers |
| 1-1-4-1 | 0C | Initialize cache to initial POST values |
| 1-1-4-3 | 0E | Initialize I/O |
| 1-2-1-1 | 10 | Initialize Power Management |
| 1-2-1-2 | 11 | Load alternate registers with initial POST values |
| 1-2-1-3 | 12 | Jump to UserPatch0 |
| 1-2-2-1 | 14 | Initialize keyboard controller |
| 1-2-2-3 | 16 | BIOS ROM checksum |
| 1-2-3-1 | 18 | 8254 timer initialization |
| 1-2-3-3 | 1A | 8237 DMA controller initialization |
| 1-2-4-1 | 1C | Reset Programmable Interrupt Controller |
| 1-3-1-1 | 20 | Test DRAM refresh |
| 1-3-1-3 | 22 | Test 8742 Keyboard controller |
| 1-3-2-1 | 24 | Set ES segment to register to 4 Gbytes |

| Beep code | POST code | Description / test point |
|---|---|---|
| 1-3-3-1 | 28 | Autosize DRAM |
| 1-3-3-3 | 2A | Clear 512 kbytes base RAM |
| 1-3-4-1 | 2C | Test 512 base address lines |
| 1-3-4-3 | 2E | Test 512 kbytes base memory |
| 1-4-1-3 | 32 | Test CPU bus-clock frequency |
| 1-4-2-1 | 34 | CMOS RAM read/write failure (this commonly indicates a problem on the ISA bus, such as a card not seated correctly) |
| 1-4-2-4 | 37 | Reinitialize the chipset |
| 1-4-3-1 | 38 | Shadow system BIOS ROM |
| 1-4-3-2 | 39 | Reinitialize the cache |
| 1-4-3-3 | 3A | Autosize cache |
| 1-4-4-1 | 3C | Configure advanced chipset registers |
| 1-4-4-2 | 3D | Load alternate registers with CMOS values |
| 2-1-1-1 | 40 | Set Initial CPU speed |
| 2-1-1-3 | 42 | Initialize interrupt vectors |
| 2-1-2-1 | 44 | Initialize BIOS interrupts |
| 2-1-2-3 | 46 | Check ROM copyright notice |
| 2-1-2-4 | 47 | Initialize manager for PCI Options ROMs |
| 2-1-3-1 | 48 | Check video configuration against CMOS |
| 2-1-3-2 | 49 | Initialize PCI bus and devices |
| 2-1-3-3 | 4A | Initialize all video adapters in system |
| 2-1-4-1 | 4C | Shadow video BIOS ROM |
| 2-1-4-3 | 4E | Display copyright notice |

| Beep code | POST code | Description / test point |
|---|---|---|
| 2-2-1-1 | 50 | Display CPU type and speed |
| 2-2-1-3 | 52 | Test keyboard |
| 2-2-2-1 | 54 | Set key click if enabled |
| 2-2-2-3 | 56 | Enable keyboard |
| 2-2-3-1 | 58 | Test for unexpected interrupts |
| 2-2-3-3 | 5A | Display prompt "Press F2 to enter SETUP" |
| 2-2-4-1 | 5C | Test RAM between 512 and 640 kbytes |
| 2-3-1-1 | 60 | Test expanded memory |
| 2-3-1-3 | 62 | Test extended memory address lines |
| 2-3-2-1 | 64 | Jump to UserPatch1 |
| 2-3-2-3 | 66 | Configure advanced cache registers |
| 2-3-3-1 | 68 | Enable external and CPU caches |
| 2-3-3-2 | 69 | Initialize SMI handler |
| 2-3-3-3 | 6A | Display external cache size |
| 2-3-4-1 | 6C | Display shadow message |
| 2-3-4-3 | 6E | Display non-disposable segments |
| 2-4-1-1 | 70 | Display error messages |
| 2-4-1-3 | 72 | Check for configuration errors |
| 2-4-2-1 | 74 | Test real-time clock |
| 2-4-2-3 | 76 | Check for keyboard errors |
| 2-4-4-1 | 7C | Set up hardware interrupts vectors |
| 2-4-4-3 | 7E | Test coprocessor if present |
| 3-1-1-1 | 80 | Disable onboard I/O ports |

| Beep code | POST code | Description / test point |
|---|---|---|
| 3-1-1-3 | 82 | Detect and install external RS-232 ports |
| 3-1-2-1 | 84 | Detect and install external parallel ports |
| 3-1-2-3 | 86 | Reinitialize onboard I/O ports |
| 3-1-3-1 | 88 | Initialize BIOS Data Area |
| 3-1-3-3 | 8A | Initialize Extended BIOS Data Area |
| 3-1-4-1 | 8C | Initialize floppy controller |
| 3-2-1-1 | 90 | Initialize hard-disk controller |
| 3-2-1-2 | 91 | Initialize local-bus hard-disk controller |
| 3-2-1-3 | 92 | Jump to UserPatch2 |
| 3-2-2-1 | 94 | Disable A20 address line |
| 3-2-2-3 | 96 | Clear huge Es segment register |
| 3-2-3-1 | 98 | Search for option ROMs |
| 3-2-3-3 | 9A | Shadow option ROMs |
| 3-2-4-1 | 9C | Set up Power Management |
| 3-2-4-3 | 9E | Enable hardware interrupts |
| 3-3-1-1 | A0 | Set time of day |
| 3-3-1-3 | A2 | Check key lock |
| 3-3-3-1 | A8 | Erase F2 prompt |
| 3-3-3-3 | AA | Scan for F2 key stroke |
| 3-3-4-1 | AC | Enter SETUP |
| 3-3-4-3 | AE | Clear in-POST flag |
| 3-4-1-1 | B0 | Check for errors |
| 3-4-1-3 | B2 | POST done — prepare to boot operating system |

| Beep code | POST code | Description / test point |
|---|---|---|
| 3-4-2-1 | B4 | One beep |
| 3-4-2-3 | B6 | Check password (optional) |
| 3-4-3-1 | B8 | Clear global descriptor table |
| 3-4-4-1 | BC | Clear parity checkers |
| 3-4-4-3 | BE | Clear screen (optional) |
| 3-4-4-4 | BF | Check virus and backup reminders |
| 4-1-1-1 | C0 | Try to boot with INT 19 |
| 4-2-1-1 | D0 | Interrupt handler error |
| 4-2-1-3 | D2 | Unknown interrupt error |
| 4-2-2-1 | D4 | Pending interrupt error |
| 4-2-2-3 | D6 | Initialize option ROM error |
| 4-2-3-1 | D8 | Shutdown error |
| 4-2-3-3 | DA | Extended Block Move |
| 4-2-4-1 | DC | Shutdown 10 error |
| 4-2-4-3 | DE | Keyboard Controller Failure (most likely problem is with RAM or cache unless no video is present) |
| 4-3-1-3 | E2 | Initialize the chipset |
| 4-3-1-4 | E3 | Initialize refresh counter |
| 4-3-2-1 | E4 | Check for Forced Flash |
| 4-3-2-2 | E5 | Check HW status of ROM |
| 4-3-2-3 | E6 | BIOS ROM is OK |
| 4-3-2-4 | E7 | Do a complete RAM test |
| 4-3-3-1 | E8 | Do OEM initialization |

| Beep code | POST code | Description / test point |
|---|---|---|
| 4-3-3-2 | E9 | Initialize interrupt controller |
| 4-3-3-3 | EA | Read in bootstrap code |
| 4-3-3-4 | EB | Initialize all vectors |
| 4-3-4-1 | EC | Boot the Flash program |
| 4-3-4-2 | ED | Initialize the boot device |
| 4-3-4-3 | EE | Boot code was read OK |

# Interpreting startup diagnostics from SCSI BIOS

## Introduction

The results from the SCSI controller diagnostics appear after the POST results.

## Applicable cards

Results of the startup diagnostics appear only if you have the following adapter cards installed on your system:

- Adaptec SCSI controller

  The adapter is integrated in the SBC and can be disabled.
- Mylex RAID adapter

  The RAID adapter is optional.

# Section C: Performing Windows NT online diagnostics

## In this section


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# Overview

## Introduction

This section outlines how to access the run-time online diagnostics provided by the Windows NT server software.

# Checking hardware using Windows NT 4.0 diagnostics

## Introduction

The Windows NT 4.0 system provides tools that can be used to diagnose and debug system problems, including

- Windows NT Diagnostics screen
- Event Viewer

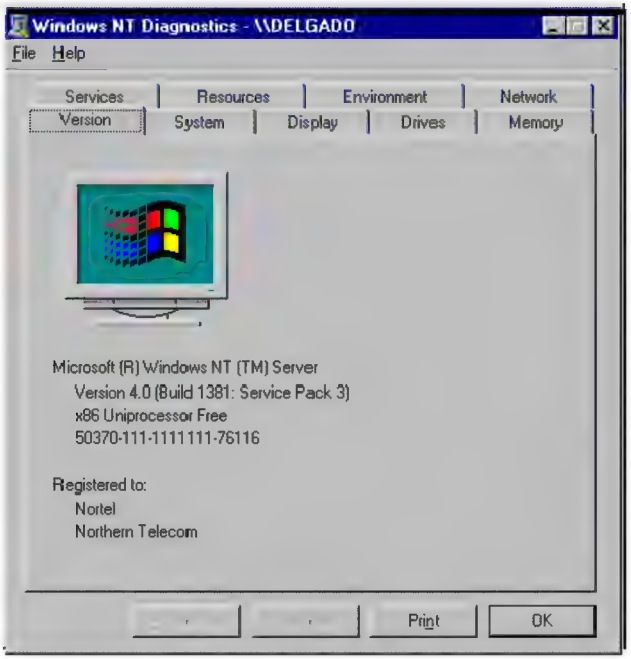
## Windows NT Diagnostics window

The Windows NT 4.0 Diagnostics window allows you to view details concerning the system and network components.

You can open the following tabs on the Diagnostics window to display specific information:

- Version
- System
- Display
- Drives
- Memory
- Services
- Resources
- Environment
- Network

## Windows NT Diagnostics main window




## To access Windows NT 4.0 diagnostic tools

1. Log on to Windows.
2. Select Start > Programs > Administrative Tools (Common) > Windows NT Diagnostics to access the Windows NT Diagnostics window.
3. Select the appropriate tab on the Diagnostics main window to view information concerning the system and network. Details available on each tab are supplied in the following table:

| Select | To display details about |
|---|---|
| Version | Version<br>Registration |
| System | System identifier<br>HAL<br>BIOS information<br>Processors |
| Display | BIOS information<br>Adapter<br>Driver |
| Drives | Drives by type or letter<br>To view specific details, select a drive, and then press Properties to view details for the drive, including size, labels, and so on. |
| Memory | Memory, including totals, physical and kernel memory, commit charge, kernel |
| Services | Service and state for both services and devices<br>To view specific details, select a service, and then press Properties to view details, including pathname, dependencies, service flags, and so on. |
| Resources | Select one of the following buttons to display information about the resources available on the system:<br>IRQ<br>I/O Port<br>DMA<br>Memory<br>Devices<br>To view specific details, select a resource, and then press Properties. |

| Select | To display details about |
|---|---|
| Environment | Variable and value for both system and local user |
| Network | Select one of the following buttons to display information about the network and components:<br>■ General<br>■ Transports<br>■ Settings<br>■ Statistics |

## Event Viewer

Windows NT 4.0 provides an Event Viewer that is used to view event logs to assist in diagnosing and debugging system problems.

Three types of event logs are available from the Event Viewer, as follows:

| | |
|---|---|
| System | Logs events by Windows NT 4.0 components, including RAS or other WinNT services. |
| Security | Logs security events, such as logons, logoffs, illegal access, and so on. This option is available only to users with Administrative access. |
| Applications | Logs events by application, such as database file errors, and so on. |

### To access the Event Viewer

1 Log on to Windows.

2 Select Start > Programs > Administrative Tools (Common) > Event Viewer.

3 Select the appropriate tab to view the associated event logs.

# Invoking the chkdsk utility

## Introduction

The chkdsk utility checks a specified disk on the server and displays a status report. Use this utility on drive C or D.

**Note:** A version of this utility, called autocheck, automatically runs at Windows NT boot-time. Output from this utility appears on the start-up blue screen.

## Chkdsk utility syntax

The chkdsk utility uses the following syntax:

```
chkdsk [drive:][path]filename] [/F] [/V] [/R]
```

| Parameters | Description |
|---|---|
| [drive:] | The drive letter of the drive you want to check. |
| filename | The names of files to check for fragmentation. |
| /F | Add this switch to fix errors on the disk. |
| /V | Add this switch to display the full pathname of every file on the disk. |
| /R | Add this switch to locate bad sectors and to recover readable information. |

## To run the chkdsk utility from Windows NT 4.0

1 Select Start > Programs > Command Prompt to display the MS-DOS command prompt window.

**Result:** The MS-DOS Command Prompt window appears.

2 At the MS-DOS prompt, type **chkdsk <drive letter:>** (for example, chkdsk c:).

3 Press Enter.

**Result:** The system runs the chkdsk utility.

4 Type **Exit** to exit MS-DOS and return to Windows NT 4.0.

# Invoking and interpreting TCP/IP diagnostics

## Introduction

This section outlines the following TCP/IP diagnostic tools available for the Ethernet card. The first three tools are the most useful:

- ipconfig
- ping
- tracert
- arp
- nbtstat
- netstat

## The ipconfig command

The ipconfig command displays IP configuration information.

### Ipconfig default

Running the command without flags displays the IP address, subnet mask, and default gateway for each adapter bound to TCP/IP.

### Ipconfig command syntax

ipconfig /[ ]

The following flags are available for the ipconfig command:

| Flag | Description |
|---|---|
| /? | Displays Help information. |
| /all | Displays full configuration information. |
| /release | Releases the IP address for the specified adapter. |

| Flag | Description |
|---|---|
| /renew | Renews the IP address for the specified adapter. |

## To run the ipconfig command from Windows NT 4.0

1 Select Start > Programs > Command Prompt to display the MS-DOS command prompt window.

**Result:** The MS-DOS Command Prompt window appears.

2 At the MS-DOS prompt, type **ipconfig <with appropriate parameters:>** (for example, ipconfig /all).

3 Press Enter.

**Result:** The system runs the ipconfig utility.

4 Type **Exit** to exit MS-DOS and return to Windows NT 4.0.

## The ping command

The ping command sends an echo request to a specified host.

### Ping command syntax

The ping command uses the following syntax:

ping [-t] [-a] [-n count] [-l size] [-f] [-i TTL] [-v TOS]

[-r count] [-s count] [[-j host-list] | [-k host-list]]

[-w timeout] destination-list

| Parameters | Description |
|---|---|
| -t | Pings the specified host until interrupted. |
| -a | Resolves addresses to host names. |
| -n count | Specifies the number of echo requests to send. |
| -l size | Sends buffer size. |
| -f | Set Don't Fragment flag in packet. |
| -i TTL | Time To Live. |
| -v TOS | Type Of Service. |
| -r count | Record route for count hops. |
| -s count | Time stamp for count hops. |
| -j host-list | Loose source route along host list. |
| -k host-list | Strict source route along host list. |
| -w timeout | Timeout in milliseconds to wait for each reply. |

## To run the ping command from Windows NT 4.0

1 Select Start > Programs > Command Prompt to display the MS-DOS command prompt window.

**Result:** The MS-DOS Command Prompt window appears.

2 At the MS-DOS prompt, type **ping <destination IP address:>** (for example, ping 47.286.32.0:).

3 Press Enter.

**Result:** The system indicates a successful ping.

4 Type **Exit** to exit MS-DOS and return to Windows NT 4.0.

## The tracert command

This utility determines the route taken to a destination.

### How tracert works

The tracert utility follows several steps to complete its task:

- Tracert sends Internet Control Message Protocol (ICMP) echo packets with varying Time-To-Live (TTL) values to the destination.
- Each router along the path must decrement the TTL on a packet by at least 1 before forwarding it, so the TTL is effectively a hop count.
- When the TTL on a packet reaches 0, the router sends back an ICMP Time Exceeded message to the source system.
- Tracert determines the route by sending the first echo packet with a TTL of 1 and incrementing the TTL by 1 on each subsequent transmission until the target responds, or the maximum TTL is reached.
- Tracert then examines the ICMP Time Exceeded messages sent back by intermediate routers.

### Tracert syntax

tracert [-d] [-h maximum_hops] [-j host_list] [-w timeout] [target_name]

### Tracert parameters

The tracert command uses the following parameters:

| Parameter | Description |
|---|---|
| -d | Specifies not to resolve addresses to hostnames. |
| -h maximum_hops | Specifies the maximum number of hops to search for target. |
| -j host-list | Specifies a loose source route along the host list. |
| -w timeout | Waits the number of milliseconds specified by the timeout for each reply. |

| Parameter | Description |
|---|---|
| target_name | The name of the target host. |

## To run the tracert command from Windows NT 4.0

1 Select Start > Programs > Command Prompt to display the MS-DOS command prompt window.

**Result:** The MS-DOS Command Prompt window appears.

2 At the MS-DOS prompt, type

**tracert [-d] [-h maximum_hops] [j host_list] [-w timeout] [target name]**

(for example, tracert 47.286.0.32 210 47.236.0.04)

3 Press Enter.

**Result:** The system runs the tracert utility.

4 Type **Exit** to exit MS-DOS and return to Windows NT 4.0.

## The arp command

The arp command displays and modifies the IP-to-physical address translation tables used by Address Resolution Protocol (arp).

### Arp command syntax

The arp command uses the following syntax:

arp -s inet_addr eth_addr [if_addr]

arp -d inet_addr [if_addr]

arp -a [inet_addr] [-N if_addr]

| Parameter | Description |
|---|---|
| -a | Displays current arp entries by interrogating the current protocol data. If inet_addr is specified, the IP and physical addresses for only the specified computer appear. If more than one network interface uses arp, entries for each arp table appear. |
| -g | Same as -a. |
| inet_addr | Specifies an Internet address. |
| if_addr | Specifies the Internet address of the interface whose address translation table should be modified. If not present, the first applicable interface is used. |
| eth_addr | Specifies a physical address. |
| -N if_addr | Displays the arp entries for the network interface specified by if_addr. |
| -d | Deletes the host specified by inet_addr. |

| | |
|---|---|
| -s | Adds the host and associates the Internet address inet_addr with the Physical address eth_addr. The physical address is given as six hexadecimal bytes separated by hyphens. The entry is permanent. |

## To run the arp command from Windows NT 4.0

1 Select Start > Programs > Command Prompt to display the MS-DOS command prompt window.

**Result:** The MS-DOS Command Prompt window appears.

2 At the MS-DOS prompt, type **arp** with the required parameters (for example, arp -g 47.286.0.32).

3 Press Enter.

**Result:** The system runs the arp command.

4 Type **Exit** to exit MS-DOS and return to Windows NT 4.0.

## The nbtstat command

The nbtstat command displays protocol statistics and current TCP/IP connections using NBT. This command is available only if the TCP/IP protocol is installed.

### Nbtstat command syntax

The nbtstat command uses the following syntax:

nbtstat [-a remotename] [-A IP address] [-c] [-n] [-R] [-S] [-s] [interval]

| Parameter | Description |
|---|---|
| -a remotename | Lists the remote computer's name table using its name. |
| -A IP address | Lists the remote computer's name table using its IP address. |
| -c | Lists the contents of the NetBIOS name cache giving the IP address of each name. |
| -n | Lists local NetBIOS names. Registered indicates that the name is registered by broadcast (Bnode) or WINS (other node types). |
| -R | Reloads the LMHOSTS file after purging all names from the NetBIOS name cache. |
| -r | Lists name resolution statistics for Windows networking name resolution. On a Windows NT computer configured to use WINS, this option returns the number of names resolved and registered through broadcast or through WINS. |
| -S | Displays both client and server sessions, listing the remote hosts by IP address only. |

| | |
|---|---|
| -s | Displays both client and server sessions, and attempts to convert the remote host IP address to a name using the HOSTS file. |
| interval | Displays selected statistics, pausing interval seconds between each display. Press CTRL+C to stop displaying statistics. Without this parameter, nbtstat prints the current configuration information once. |

## To run the nbtstat command from Windows NT 4.0

1 Select Start > Programs > Command Prompt to display the MS-DOS command prompt window.

**Result:** The MS-DOS Command Prompt window appears.

2 At the MS-DOS prompt, type **nbtstat** with the required parameters.

3 Press Enter.

**Result:** The system runs the nbtstat utility.

4 Type **Exit** to exit MS-DOS and return to Windows NT 4.0.

## The netstat command

The netstat command displays current TCP/IP network connections and protocol statistics.

### Netstat command syntax

The netstat command uses the following syntax:

netstat [-a] [-e] [-n] [-s] [-p proto] [-r] [interval]

| Parameter | Description |
|---|---|
| -a | Displays all connections and listening ports. |
| -e | Displays Ethernet statistics. This can be combined with the -s option. |
| -n | Displays addresses and port numbers in numerical form. |
| -s | Displays per-protocol statistics. |
| -p proto | Shows connections for the protocol specified by proto. Proto can be tcp or udp. If used with the -s option, proto can be tcp, udp, or ip. |
| -r | Displays the contents of the routing table. |
| interval | Redisplays selected statistics, pausing between each display. Press CTRL+C to stop redisplaying. |

## To run the netstat command from Windows NT 4.0

1. Select Start > Programs > Command Prompt to display the MS-DOS command prompt window.

   **Result:** The MS-DOS Command Prompt window appears.

2. At the MS-DOS prompt, type **netstat** with the required parameters.
3. Press Enter.

   **Result:** The system runs the netstat utility.

4 Type **Exit** to exit MS-DOS and return to Windows NT 4.0.

# Invoking and interpreting Token Ring card diagnostics

## Introduction

If TCP/IP protocol is installed, you can diagnose faults on the Token Ring card by using the ping command under Windows NT.

## Using the ping command

Instructions for using the ping command are in the procedure "To run the ping command from Windows NT 4.0" on page 58.

# Section D: Invoking and interpreting serial port diagnostics

## In this section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# Overview

## Introduction

Run serial port diagnostics on the 1001rp server using the TSTSERIO command. Direct the TSTSERIO command to serial ports on the server after services on these ports have been shut down manually.

# Shutting down services

## Introduction

Use the instructions in this section to shut down the services that are using the serial port you want to test before you begin the TSTSERIO local loopback tests.

**CAUTION**

**Risk of communications loss**

By stopping the services on COM 1 or COM 2, you lose the support access feature.

**CAUTION**

**Risk of stopping call processing**

By stopping the services on COM 2, you stop call processing on CallPilot.

## Services to stop for COM 1 testing

- Remote Access Server

## Services to stop for COM 2 testing

- CallPilot SLEE
- MAS EMCI
- MAS Notification Service
- Remote Access Server

## Net Stop command

Use the Net Stop command to stop a specified service on a serial port.

### NET STOP command syntax

The Net Stop command uses the following syntax:

net stop "[service-name]"

**ATTENTION**

You must restart the services that you shut down through the Net Start command after running the diagnostic. For details, see "Restarting services" on page 78.

## To invoke the Net Stop command from Windows NT 4.0

1. Select Start > Programs > Command Prompt to display the MS-DOS command prompt window.

   **Result:** The MS-DOS Command Prompt window appears.

2. At the MS-DOS prompt, type net stop "[service name]". For example, type net stop "Remote Access Server."

3. Press Enter.

   **Result:** The system runs the net stop command utility.

4. Type **Exit** to exit MS-DOS and return to Windows NT 4.0.

# Conducting TSTSERIO tests

## Introduction

The TSTSERIO command performs local loopback tests of the serial communications ports from the 1001rp server run-time environment.

**Note:** Before conducting these tests, shut down services using the NET STOP command detailed on page 71.

**CAUTION**

**Risk of communications loss**

By stopping the services on COM 1 or COM 2, you lose the support access feature.

**CAUTION**

**Risk of stopping call processing**

By stopping the services on COM 2, you stop call processing on CallPilot.

## TSTSERIO command syntax

The syntax for the TSTSERIO command is as follows:

TSTSERIO [/?] /P:comport [/S:subtstname [/L:loops]

| Flag | Requirement | Description |
|---|---|---|
| [?] | n/a | Displays Help. |
| /P:comport | Required | Specifies the symbolic port name assigned to the port you want to test. |

| Flag | Requirement | Description |
|---|---|---|
| [/S:subtstname] | Optional | Specifies a TSTSERIO subtest. See the table on below for a description of the available subtests. |
| [/L:loops] | Optional | Specifies the number of times (up to a maximum of 65 535) to execute the requested test. The default number of tests is 1. A value of 0 infinitely loops until you enter CTRL+C. |

## TSTSERIO internal loopback diagnostic subtests

The following internal loopback subtests are available for the TSTSERIO command. For each of these tests, the communications resource must be available:

| Subtest name | Description |
|---|---|
| idata | Internal data bus loopback |
| imsr | Internal modem status register |
| baud | Internal data bus loopback at various baud rates |
| word | Test 5-, 6-, 7-, and 8-bit data lengths |
| stop | Test 1, 1.5, and 2 stop bits |
| pari | Test odd/even parity |
| fifo | Test that device can operate in fifo mode |

## To invoke the TSTSERIO /P command from Windows NT 4.0

1. Select Start > Programs > Command Prompt to display the MS-DOS command prompt window.

   **Result:** The MS-DOS Command Prompt window appears.

2. At the MS-DOS prompt, type **tstserio** with the required parameters. For example, type **TSTSERIO /P com1** or **TSTSERIO /P com 2**.

3. Press Enter.

4. Type **Exit** to exit MS-DOS and return to Windows NT 4.0.

## TSTSERIO external loopback plug subtests

The following external loopback subtests are available for the TSTSERIO command. For each of these tests, an external loopback connector must be used. For more information, see "Conducting TSTSERIO tests with the loopback plug" on page 77.

| Subtest name | Description |
|---|---|
| edata | External data bus loopback. This test requires an external loopback connector. |
| emsr | External modem status register. This test requires an external loopback connector. |
| eint | Test ability of device to generate interrupts. This test requires an external loopback connector. |

## To invoke the TSTSERIO /S command from Windows NT 4.0

1 Select Start > Programs > Command Prompt to display the MS-DOS command prompt window.

**Result:** The MS-DOS Command Prompt window appears.

2 At the MS-DOS prompt, type **tstserio** with the required parameters. For example, type **TSTSERIO /P com1 /S extr**.

3 Press Enter.

4 Type **Exit** to exit MS-DOS and return to Windows NT 4.0.

# Conducting TSTSERIO tests with the loopback plug

## Introduction

The TSTSERIO command requires an external loopback connector plug for its edata, emsr, and eint subtests.

## 9-pin connector plug

The standard serial loopback connector is a female 9-pin D-sub connector. This connector has the following pins wired together:

- CTS (pin 8) wired to (pin 7) RTS
- SIN (pin 2) wired to (pin 3) SOUT
- DTR (pin 4) wired to (pin 6) DSR

Once the plug is installed on the serial port, TSTSERIO can be invoked according to the procedure outlined in the previous section.

# Restarting services

## Introduction

This section details how to restart the services for COM 1 or COM 2 after invoking the TSTSERIO local loopback tests.

## Services to restart after COM 1 testing

- Remote Access Server

## Services to restart after COM 2 testing

- CallPilot SLEE
- MAS EMCI
- MAS Notification Service
- Remote Access Server

## Net Start command

Use the NET START command to restart a specified service on a serial port.

### NET START command syntax

The NET START command uses this syntax; net start "[service-name]"

## To invoke the Net Start command from Windows NT 4.0

1. Select Start > Programs > Command Prompt to display the MS-DOS command prompt window.

   **Result:** The MS-DOS Command Prompt window appears.

2. At the MS-DOS prompt, type net start "[service name]". For example, type net start "Remote Access Server".
3. Press Enter.
4. Type Exit to exit MS-DOS and return to Windows NT 4.0.

# Chapter 4

# Using the Administrative PC to diagnose the server

## In this chapter


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# Overview

## Introduction

This chapter provides information on how to detect, isolate, and fix hardware problems on the CallPilot server using the CallPilot Administration Client software on the administrative PC.

- The section "Detecting, isolating, and fixing hardware problems" on page 81 provides details on how to detect, isolate, and fix hardware problems.
- The section "Working with the Maintenance window" on page 91 describes how to use the Maintenance window as you detect, isolate, and fix hardware problems.

**Note:** The components in the Maintenance window vary based on the type of switch connected to CallPilot and the server type. The dialog box examples in this chapter are for illustration purposes and might not appear exactly the same on your system.

# Section A: Detecting, isolating, and fixing hardware problems

## In this section


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# Overview

## Introduction

This section provides guidelines on how to detect, isolate, and fix potential or real hardware problems.

- "Detecting hardware problems" on page 83 provides information on the different ways in which you typically become aware of hardware problems.
- "Viewing events and isolating problems" on page 84 describes how to work with the Alarm Monitor, Event Browser and Maintenance screen. These tools are used to isolate the cause of problems and plan a strategy to fix hardware problems.
- "Checking channel status" on page 87 describes how to view channel status in the Channel Monitor and Multimedia Monitor.

## Component dependencies

The status of some components depend on the operational status of other components. If a component fails or is stopped, the dependent components go out of service.

**Note:** Based on the type of switch connected to CallPilot and the server type, some of these components might not appear on your system.

| Component | Dependent components |
|---|---|
| SCbus | all MPBs, MPCs, and all Multimedia and Call channels |
| Master Timeswitch | all MPBs, MPCs, and all Multimedia and Call channels |
| Timeswitch | all Multimedia and Call channels connected to the same MPB as the timeswitch |
| MPC | all multimedia channels on the MPC-8 card |
| DS30x | all Call channels associated with that DS30x link cable |

# Detecting hardware problems

## Introduction

Typically, you first become aware of a hardware problem when an alarm is raised. All hardware faults produce an alarm (or series of alarms, depending on the problem) in the Alarm Monitor.

**Note:** By default, the Alarm Monitor appears on the screen as soon as an alarm is raised. It does not appear if Alerting Off has been set in the CallPilot system window. For more information on setting or resetting the alerting feature, refer to the *Monitoring and Security for the Administrator* guide.

## Other indications of a hardware problem

Other indications of a hardware problem include the following:

- user complaints
- call processing difficulties, such as busy signals, static, dropped calls, trouble connecting, and cross talk (hearing other conversations)
- system administrator log on difficulties
- alert icons on the Maintenance window

# Viewing events and isolating problems

## Introduction

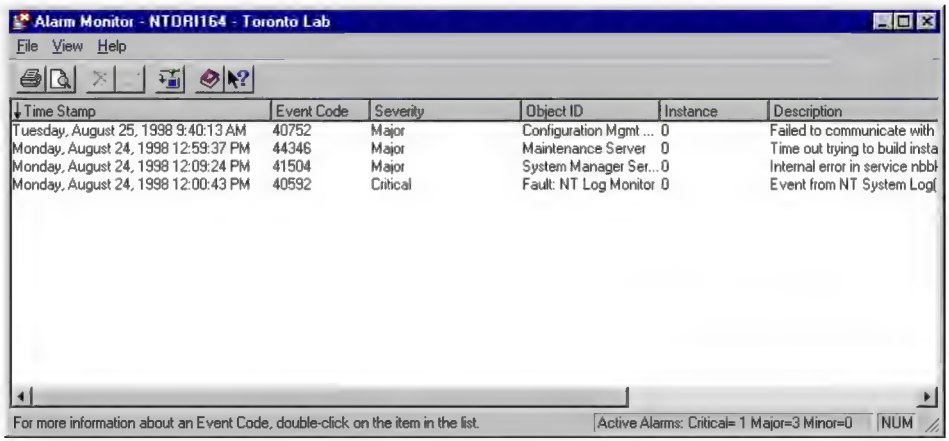
Use one of the following methods to isolate and plan a strategy to fix a hardware problem:

- Go to the Alarm Monitor to investigate one or more raised alarms.
- Use the Event Browser to investigate a series of events that occurred around the time an alarm was raised.
- Go to the Maintenance window to get status information for any suspect components. For some components, you can use the Diagnostic tab of the Maintenance window to run a diagnostic test.

**Note:** For detailed information on how to use the Alarm Monitor and Event Browser (for example, how to set preferences), refer to the *Monitoring and Security for the Administrator* guide.

## Using the Alarm Monitor

Each alarm in the Alarm Monitor has Help text that often provides a solution to the problem. If the solution is not apparent, use the Event Browser or the Maintenance screen to further investigate the problem.


Alarm Monitor - NTDRI164 - Toronto Lab
File View Help
Time Stamp | Event Code | Severity | Object ID | Instance | Description
Tuesday, August 25, 1998 9:40:13 AM | 40752 | Major | Configuration Mgmt ... | 0 | Failed to communicate with
Monday, August 24, 1998 12:59:37 PM | 44346 | Major | Maintenance Server | 0 | Time out trying to build insta
Monday, August 24, 1998 12:09:24 PM | 41504 | Major | System Manager Ser... | 0 | Internal error in service nbbl
Monday, August 24, 1998 12:00:43 PM | 40592 | Critical | Fault: NT Log Monitor | 0 | Event from NT System Log(
For more information about an Event Code, double-click on the item in the list.
Active Alarms: Critical= 1 Major=3 Minor=0
NUM

### To investigate using the Alarm Monitor

1 If the Alarm Monitor is not already visible, then in the CallPilot system window, go to System Administration > Alarms and Events > Alarm Monitor.

2 Double-click the first critical or major alarm.

**Result:** The Help window appears.

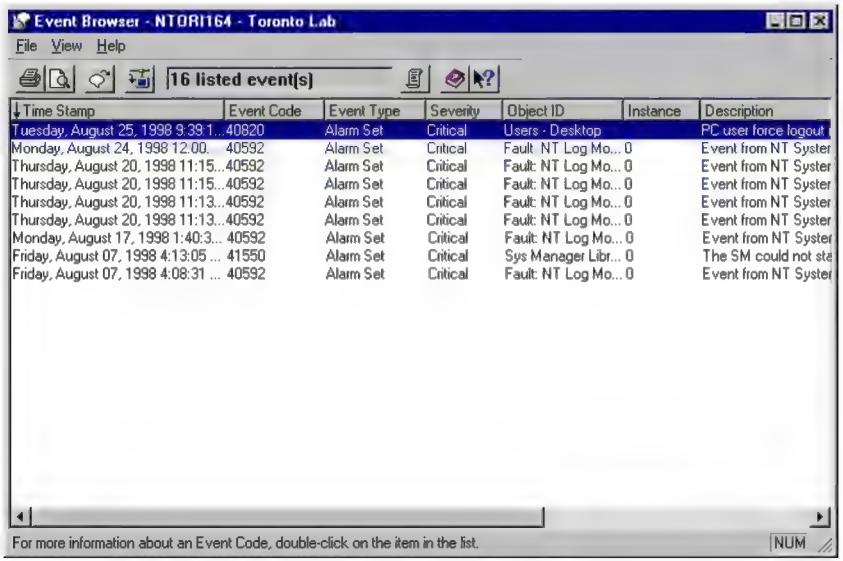
3 View the description and recovery action.

4 Repeat steps 2 and 3 for a few more alarms.

5 If the solution to the problem is not apparent, obtain the return code of the first event and continue the investigation by using the Event Browser (go to "Using the Event Browser" on page 85).

## Using the Event Browser

The Event Browser lets you view events that have been recorded in the server log. The event listing can help you better determine the root cause of the problem. Use the Event Browser to view the time the event occurred, the object that generated the event, and the cause of the event.


Event Browser - NTORI164 - Toronto Lab
File View Help
16 listed event(s)
Time Stamp | Event Code | Event Type | Severity | Object ID | Instance | Description
Tuesday, August 25, 1998 9:39:1... 40820 Alarm Set Critical Users - Desktop PC user force logout
Monday, August 24, 1998 12:00... 40592 Alarm Set Critical Fault: NT Log Mo... 0 Event from NT Syster
Thursday, August 20, 1998 11:15... 40592 Alarm Set Critical Fault: NT Log Mo... 0 Event from NT Syster
Thursday, August 20, 1998 11:15... 40592 Alarm Set Critical Fault: NT Log Mo... 0 Event from NT Syster
Thursday, August 20, 1998 11:13... 40592 Alarm Set Critical Fault: NT Log Mo... 0 Event from NT Syster
Thursday, August 20, 1998 11:13... 40592 Alarm Set Critical Fault: NT Log Mo... 0 Event from NT Syster
Monday, August 17, 1998 1:40:3... 40592 Alarm Set Critical Fault: NT Log Mo... 0 Event from NT Syster
Friday, August 07, 1998 4:13:05 ... 41550 Alarm Set Critical Sys Manager Libr... 0 The SM could not sta
Friday, August 07, 1998 4:08:31 ... 40592 Alarm Set Critical Fault: NT Log Mo... 0 Event from NT Syster
For more information about an Event Code, double-click on the item in the list.
NUM

### To investigate using the Event Browser

1. In the CallPilot system window, go to System Administration > Alarms and Events > Event Browser.
2. Double-click an event that appears to be related to the problem, or an event that occurred near the time the alarm was raised.
3. View the description and recovery action.
4. Repeat steps 2 and 3 for a few more events.
5. If the solution to the problem is not apparent, contact your distributor.

## Using the Maintenance window

If you suspect or discover a problem with an MPC-8 card or the timeswitch, use the Diagnostic tab of the Maintenance window. You can view the results of the last diagnostic test run against the component. This produces a list of components that might be causing the problem. A probability percentage is listed with each component that reflects how probable it is that replacing the component will fix the problem.

For information on using the Maintenance window to view the results of the last diagnostic test, see "Viewing last diagnostic results" on page 113.

For information on all aspects of the Maintenance window, see Section B: "Working with the Maintenance window," on page 91.

# Checking channel status

## Introduction

The Channel Monitor shows the status of call channels (the connection between the server and the switch that carries the call signal to CallPilot).

The Multimedia Monitor shows the status of multimedia channels (the DSP ports that process the call— these are the voice, fax, and speech recognition channels).

The Channel Monitor and Multimedia Monitor also enable you to start, stop, or courtesy stop channels. To run diagnostics on a channel, use the Maintenance window.

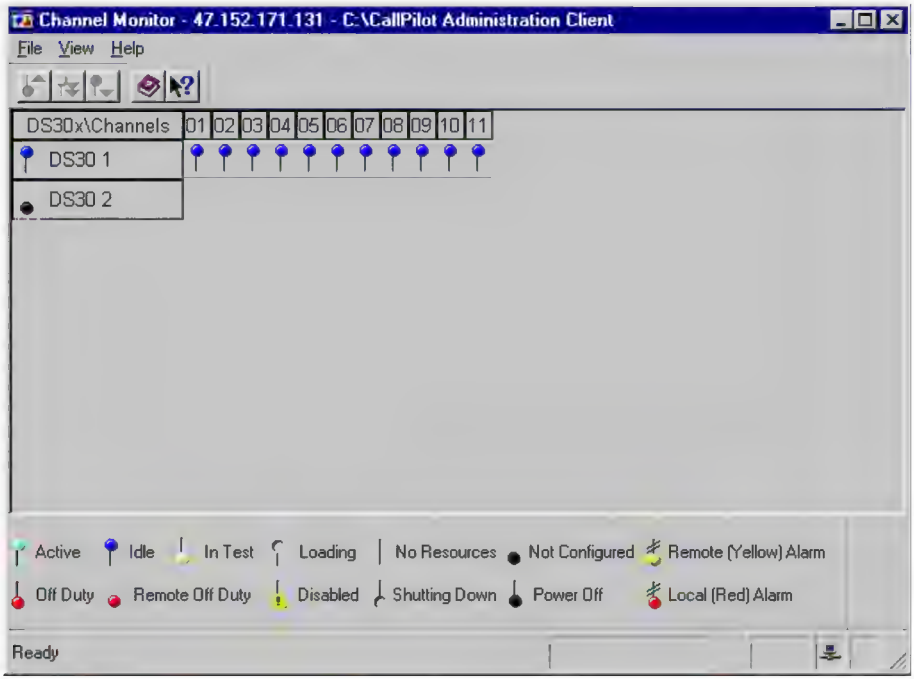
**Note:** For detailed information on how to use the Channel Monitor and Multimedia Monitor, refer to the online Help in the CallPilot system window, or refer to the *Monitoring and Security for the Administrator* guide.

## To view call channel states

1 In the CallPilot system window, go to System Administration > Maintenance Administration > Channel Monitor.

2 Double-click Channel Monitor.

**Result:** The Channel Monitor window appears, showing the state of all call channels on the system. For an explanation of the channel states, refer to the online Help.

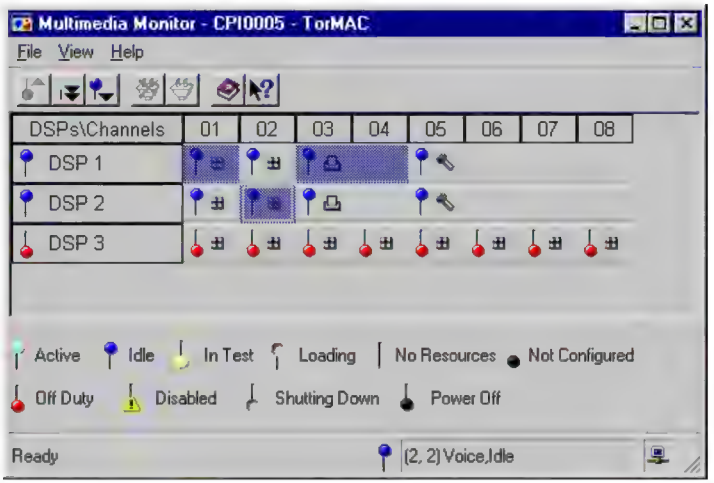


## To view multimedia channels

1 In the CallPilot system window, go to System Administration > Maintenance Administration > Multimedia Monitor.

2 Double-click Multimedia Monitor.

**Result:** The Multimedia Monitor window appears, showing the state of all multimedia channels. For an explanation of the channel states, refer to the online Help.



# Section B: Working with the Maintenance window

## In this section


| | |
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| Introducing the Maintenance window | 93 |
| Obtaining general information about components | 101 |
| Viewing component states | 103 |
| Starting and stopping components | 106 |
| Running integrated diagnostics | 110 |
| Viewing last diagnostic results | 113 |
| Obtaining replacement part numbers | 116 |

# Overview

## Introduction

Use the Maintenance window to do the following:

- Obtain general information about components.
- View component states.
- Start and stop components.
- Run integrated diagnostic tests.
- View the results of the last diagnostic test run against a component.

# Introducing the Maintenance window

## Introduction

All physical and logical hardware components are listed in the Maintenance window tree. This tree shows how components relate to each other. For example, eight multimedia channels exist as subcomponents for each MPC-8 card.

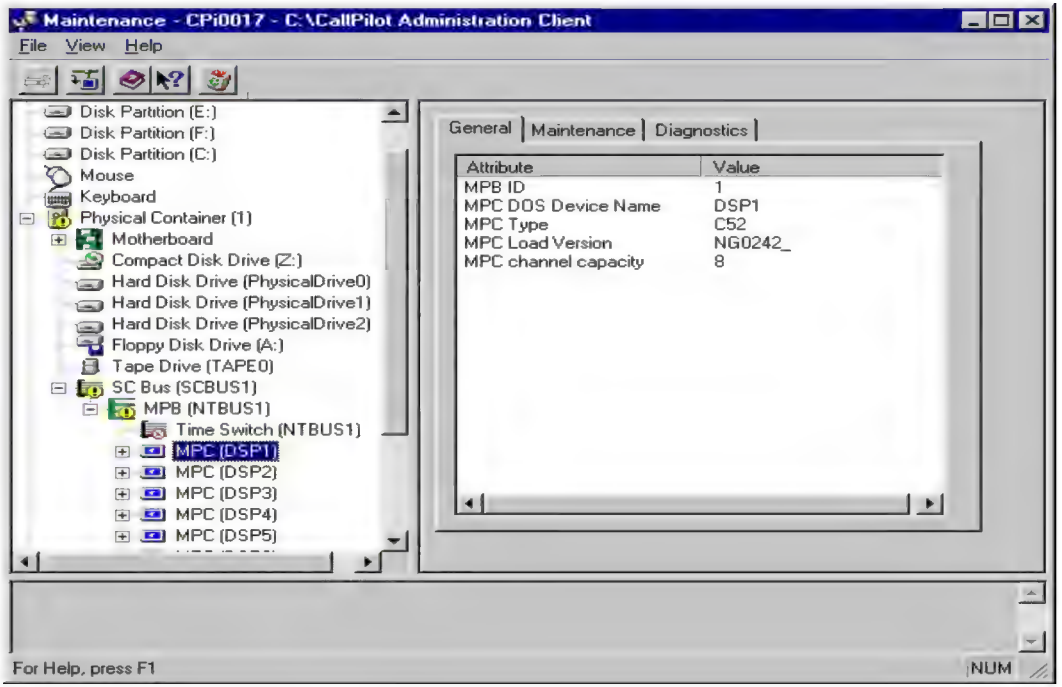
When you select a component in the Maintenance window, at least one of the following tabs appear:

| Tab | Description |
|---|---|
| General | This page shows general technical information about the selected component. |
| Maintenance | This page shows the state of the selected component. You can also take some components out of service from this page. |
| Diagnostics | This page enables you to run component-specific diagnostics. |
| Replacement | This page shows replacement part numbers for selected components. This option is not available for all platforms. Contact your distributor for latest part number information. |

**Note:** The components in the Maintenance window vary based on the type of switch connected to CallPilot and the server type. The dialog box examples in this chapter are for illustration purposes and might not appear exactly the same on your system.

## The General tab

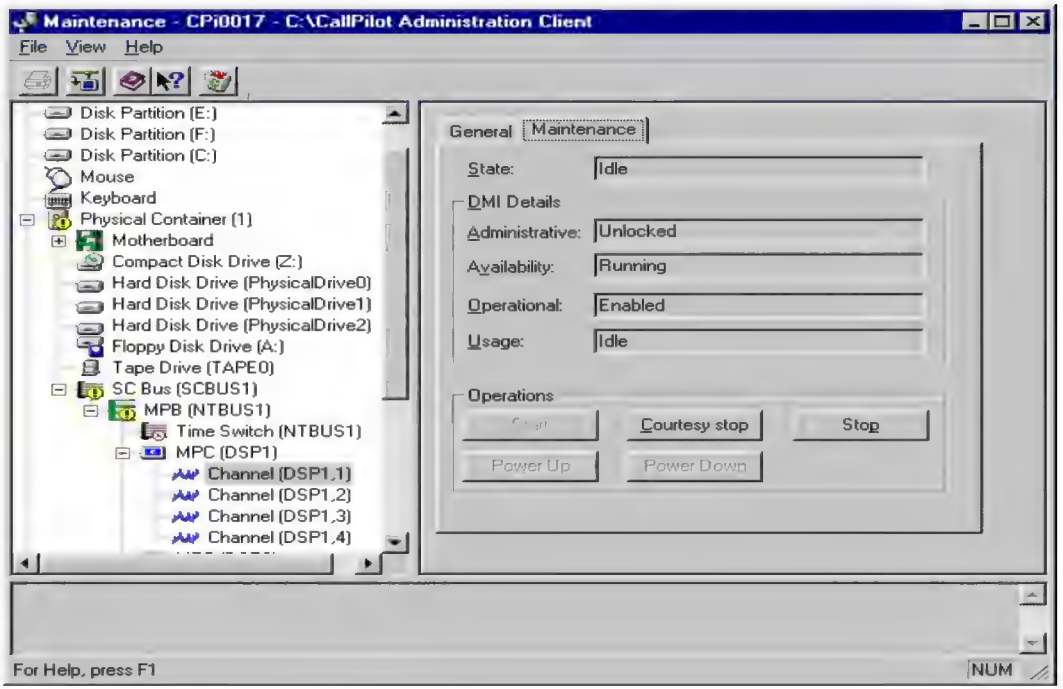
Use the General tab to view general information about components.




| Box | Description |
|---|---|
| **Attribute** | Shows component-specific general technical information. |
| **Value** | Shows additional details, such as the speed of a selected device. |

## The Maintenance tab

Use the Maintenance tab to view the state of the highlighted component and to start and stop a component before running a diagnostic test.

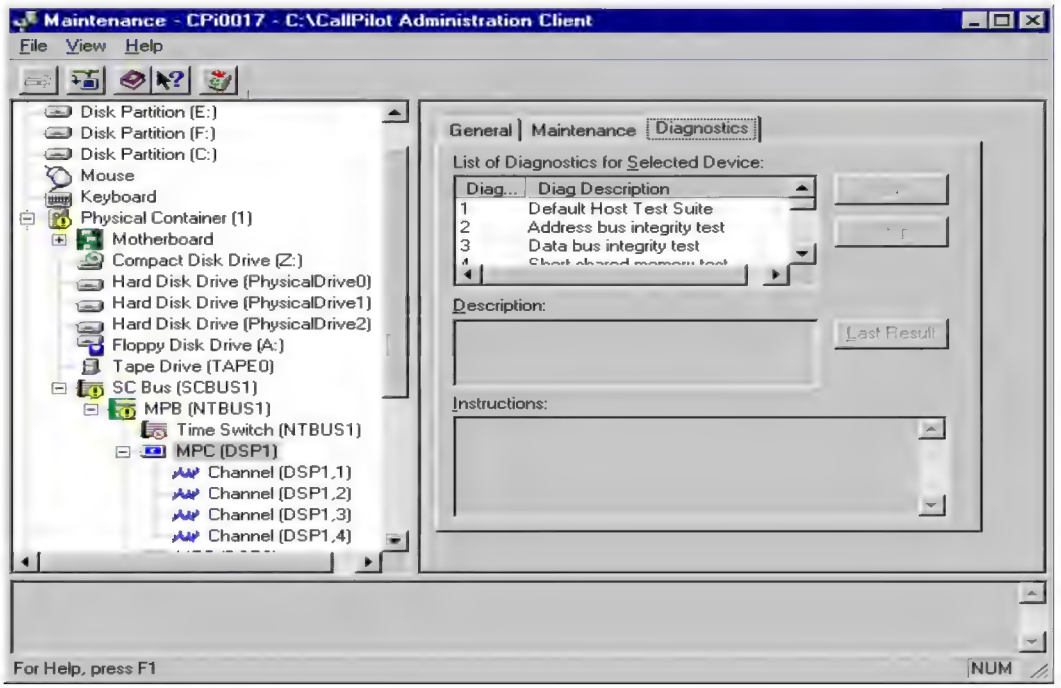


| Box | Description |
|---|---|
| **State** | Specifies the state of the highlighted component. |
| **Administrative** | This is a Desktop Management Interface (DMI) summary state. You do not need this state. |
| **Availability** | This is a DMI summary state. You do not need this state. |
| **Operational** | This is a DMI summary state. You do not need this state. |
| **Usage** | This is a DMI summary state. You do not need this state. |
| **Stop** | Use this button to take the selected device out of service immediately. All calls in progress are disconnected.<br>**Caution:**<br>For CallPilot servers connected to a Lucent, Mitel, or Rolm switch, if you stop an individual call channel, the corresponding port on the switch side is not automatically disabled. As a result, calls can continue to land on the stopped channel resulting in a Ring-No-Answer.<br>If you need to stop an individual channel, you have two options:<br>■ Busy-out the port on the switch side. This must be done manually by the switch administrator.<br>■ Courtesy stop the entire hunt group that contains the call channel or courtesy stop all call channels in the system.<br>This caution does not apply to stopping DSP ports. |

| Box | Description |
|---|---|
| **Courtesy stop** | Use this button to take the selected device out of service after all calls are finished. This prevents any calls from being disconnected.<br>**Caution:**<br>For CallPilot servers connected to a Lucent, Mitel, or Rolm switch, if you stop an individual call channel, the corresponding port on the switch side is not automatically disabled. As a result, calls can continue to land on the stopped channel resulting in a Ring-No-Answer.<br>If you need to stop an individual channel, you have two options:<br>■ Busy-out the port on the switch side. This must be done manually by the switch administrator.<br>■ Courtesy stop the entire hunt group that contains the call channel or courtesy stop all call channels in the system.<br>This caution does not apply to stopping DSP ports. |
| **Start** | Use this button to put the selected device in service. |
| **Power Up** | Use this button to power up an MPC-8 card that had been powered down. You can only use this button for MPC-8 cards on a 200i server. |
| **Power Down** | Use this button to power off an MPC-8 card prior to replacing it. You can only use this button for MPC-8 cards on a 200i server. |

## The Diagnostics tab

Use the Diagnostics tab to run a diagnostic test or to view the results of the last diagnostic test run on a component.

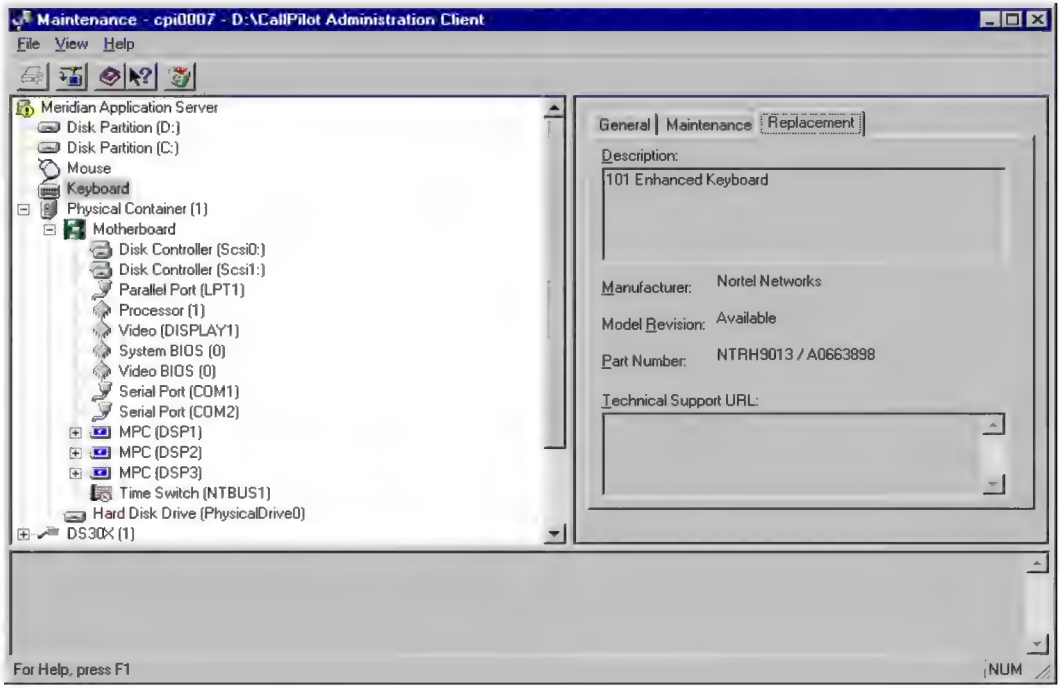



| Box | Description |
|---|---|
| **List of Diagnostics for Selected Device** | Shows the diagnostic tests that are available for the highlighted component. |
| **Run** | Use this button to run the selected diagnostics. For the Timeswitch and MPC components, go to the Maintenance tab to courtesy stop the component before you run diagnostics. |
| **Stop** | Use this button to stop the selected diagnostics |

| Box | Description |
|---|---|
| **Last Result** | Use this button to view the results of the last diagnostic test.<br>The results include a list of Field Replaceable Units (FRU), which, if replaced, might fix the problem. Each FRU is shown with a percentage that shows how probable it is that the component caused the hardware problem. |
| **Description** | Shows a comment or description for a selected diagnostic test. |
| **Instructions** | Shows the instructions for the user to run the diagnostic test. |

## The Replacement tab

The Replacement tab shows component part number information. This tab is not available for all platforms. To be certain you have the latest component information, contact your distributor.




| Box | Description |
|---|---|
| **Description** | Shows the name of the highlighted component. |
| **Manufacturer** | Shows the manufacturer of the component. |
| **Model Revision** | Shows the revision number for the component. |
| **Part Number** | Shows the part number for the component. |
| **Technical Support URL** | Shows a web site address where you can get technical support. |

# Obtaining general information about components

## Introduction

Find general technical information for each hardware component listed in the tree using the General tab of the Maintenance window.

For a description of the General tab, see "The General tab" on page 94.

## Type of technical information

Technical information about hardware components typically includes details such as the following:

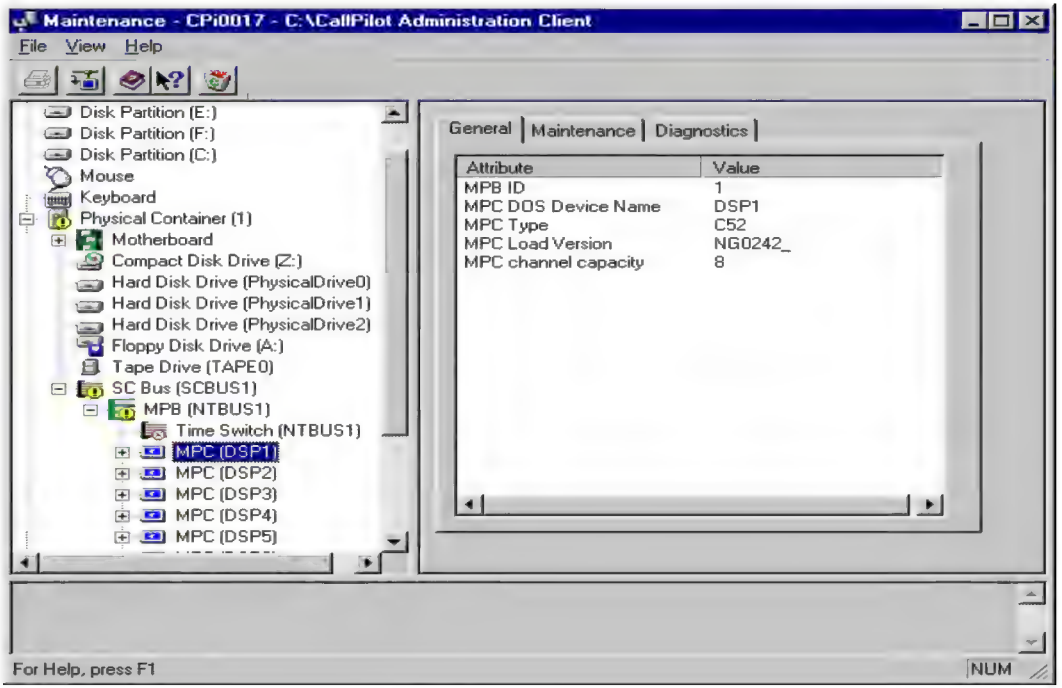
- the name, class, type, series, or version of a component
- various capabilities of a component (for example, the speed of a CPU)
- the available disk space

**Getting there** CallPilot system > System Administration > Maintenance
Administration > Maintenance

## To view component details

1 From the left pane of the Maintenance window, select the hardware component about which you want to obtain information.

**Result:** The General page appears with general information shown.



# Viewing component states

## Introduction

View a component's state to determine the general condition of the component, including whether the component is disabled or off duty. You can view the state of components that are listed in the Maintenance tab of the Maintenance window.

For a description of the Maintenance tab, see "The Maintenance tab" on page 95.

## Component states

The state of a hardware component changes depending on the following factors:

- whether the component is currently involved in processing a call
- whether a diagnostic test is being run on the component
- whether the component is out of service

You can determine the state of a component by looking at the State field in the Maintenance tab.

| State | Description |
|---|---|
| Active | The component is working and currently involved in processing a call. |
| Idle | The component is working but not currently involved in processing a call. |
| Uninstalled | The component is not installed or properly configured. This usually happens only when the system is being configured, or if the database is corrupted. |
| Shutting Down | The component is in the process of stopping.<br>This state occurs quickly and is immediately followed by Off Duty. |

| State | Description |
|---|---|
| Loading | The component has been started, which takes it out of the Off Duty state.<br>This state occurs quickly and is immediately followed by Idle. |
| No resources | The hardware required for the component to operate is not installed or not operating properly. |
| Off duty | The component has been stopped. |
| Remote Off Duty | The component has been taken out of service at the switch. |

### Details

These states (Administrative, Availability, Operational, and Usage) are standard Desktop Management Interface (DMI) states. They are shown for administrators who understand and use the DMI standard in other aspects of their jobs. You do not need to use the DMI states; the summary state listed in the State field is provided instead.

## Alert icons

If one of the following icons appears next to a component in the tree, the component or one of its subcomponents is experiencing a problem:

| Icon | Description |
|---|---|
| | This means that a diagnostic test run on the component has failed and the component has been placed into disabled status.<br>You must view the last results of the diagnostic test. See "Viewing last diagnostic results" on page 113. |
| | This means that a problem exists with one of the component's subcomponents.<br>Expand the tree to locate the subcomponent with the problem. |

**Getting there** CallPilot system > System Administration > Maintenance Administration > Maintenance

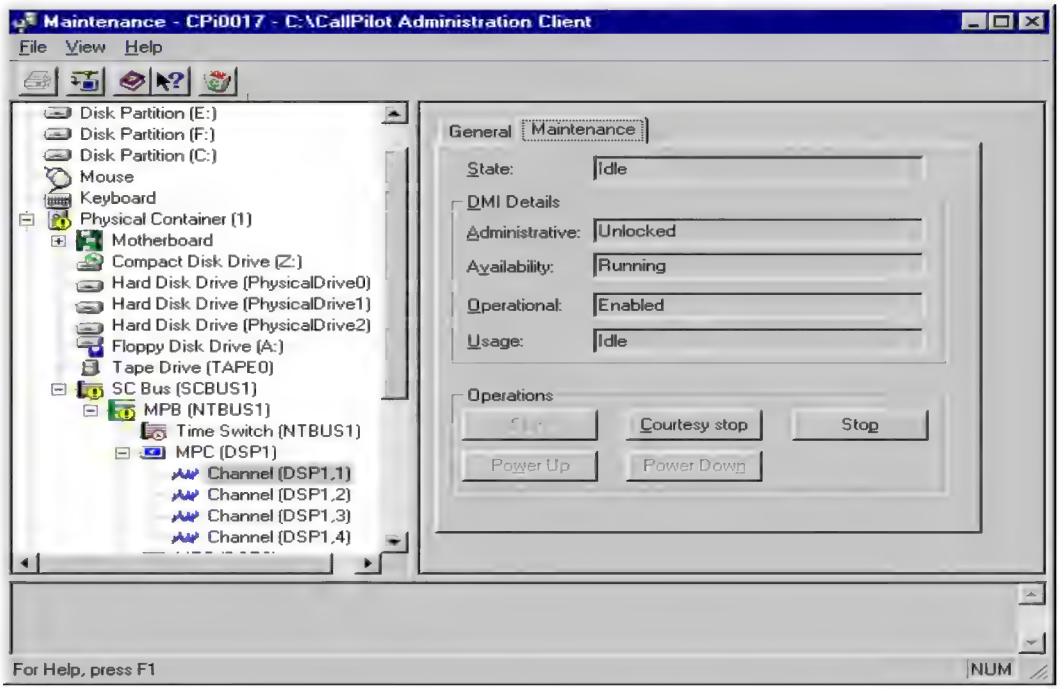
## To view the state of a hardware component

1 From the left pane of the Maintenance window, select the hardware component.

**Result:** The General page appears.

2 From the right pane, click the Maintenance tab.

**Result:** The Maintenance page appears.




3 View the state of the selected component in the State field.

# Starting and stopping components

## Introduction

When you stop a component, it goes out of service and stops operating. You must either stop or courtesy stop a component before you can run a diagnostic test on it.

**ATTENTION**

Nortel Networks recommends that you courtesy stop a component if possible.

In the Maintenance window, the courtesy stop option is available only at the individual channel level.

To courtesy down CallPilot, use the Multimedia Monitor to courtesy stop all DSPs.

To courtesy stop a range of multimedia channels or all multimedia channels on an MPC [DSP] card, use the Multimedia Monitor. See "Checking channel status" on page 87 for an overview of the Channel Monitor and Multimedia Monitor.

When you start a channel, it goes back into service. You must start a channel after replacing it, or after running a successful diagnostic test, to bring it back into service.

### Courtesy stop

A courtesy stop takes the component out of service only after the component has finished processing the active call. If the component is currently processing a call, the call is not dropped. If the component is not currently in use, it is taken out of service immediately. This method is preferred over a regular stop.

### Stop

A stop takes the component out of service immediately, regardless of whether the component is currently processing calls. All active calls are dropped. Typically, you perform a stop only when severe problems occur that are affecting a large number of incoming calls, or if your organization determines a special need for it.

**CAUTION**

**Risk of Ring No Answer on disabled (stopped) call channel on Lucent, Mitel, or Rolm systems**

For CallPilot servers connected to a Lucent, Mitel, or Rolm switch, if you stop an individual call channel, the corresponding port on the switch side is not automatically disabled. As a result, calls can continue to land on the stopped channel resulting in a Ring-No-Answer.

If you need to stop an individual channel, you have two options:

- Busy-out the port on the switch side. This must be done manually by the switch administrator.
- Courtesy stop the entire hunt group that contains the call channel or courtesy stop all call channels in the system.

This caution does not apply to stopping DSP ports.

## Components that can be started and stopped

This section lists components that can be started and stopped.

If you want to start or stop more than one or two multimedia or call channels, use the Channels windows. See "Checking channel status" on page 87 for an overview of the Channel Monitor and Multimedia Monitor. For detailed information, refer to the *Monitoring and Security for the Administrator* guide.

**Note:** Based on the type of switch connected to CallPilot and the server type, some of these components do not appear or do not have the Stop option:

| Component | Effect of stopping |
|---|---|
| SCbus | takes out of service all call processing resources |
| Timeswitch | takes out of service the MPB16 card that is serviced by the timeswitch |

| Component | Effect of stopping |
|---|---|
| MPC-8 cards | takes out of service the selected MPC-8 card |
| Multimedia (DSP) channels | takes out of service the selected DSP channel |
| Switch Interface Link (found under the Switch Interface Card component) | takes out of service the selected link to the switch |
| Call channels | takes out of service the selected call channel |
| DS30x link | takes out of service the selected DS30x link |

**Getting there** CallPilot system > System Administration > Maintenance Administration > Maintenance

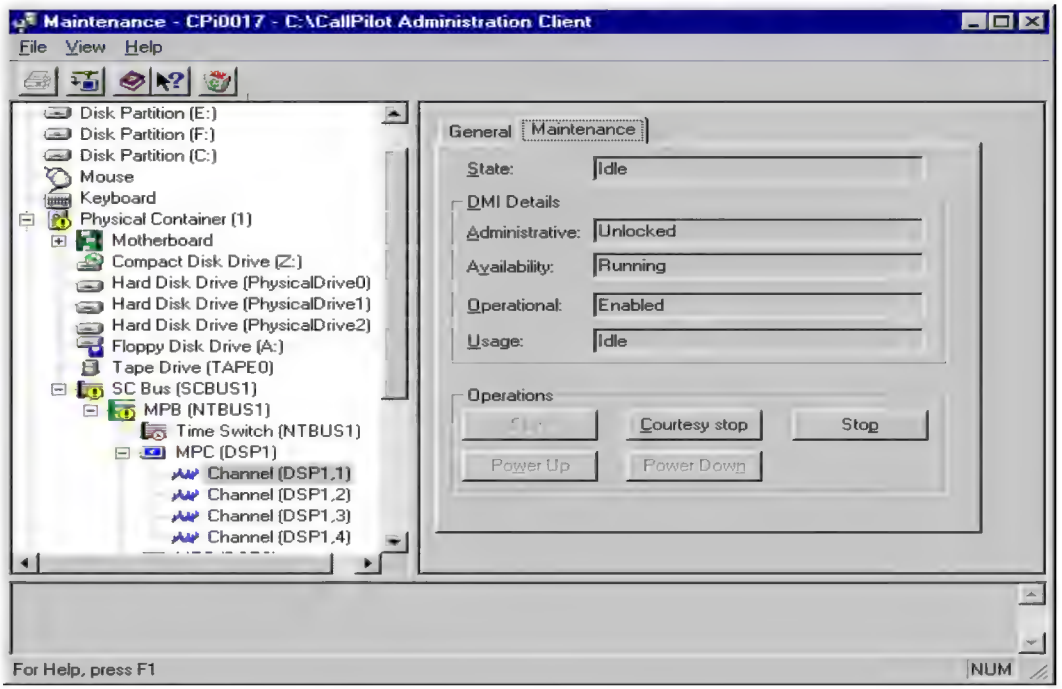
## To start or stop a component in the Maintenance window

1 From the left pane of the Maintenance window, select the hardware component you want to start or stop.

**Result:** The General page appears.

2 From the right pane, click the Maintenance tab.

**Result:** The Maintenance page appears.




3 Click Start, Courtesy Stop, or Stop.

# Running integrated diagnostics

## Introduction

You should run diagnostic tests from the Diagnostic tab in the Maintenance window in the following circumstances:

- After installing or reinstalling a component, make sure it is operating properly. (A component must be Off Duty [stopped] before you can run the diagnostic test. See "Starting and stopping components" on page 106.)
- Run the tests if the CallPilot server experiences trouble processing incoming calls. Problems include static, dropped calls, and cross talk (hearing another conversation).

**Note:** For a description of the Diagnostic tab, see "The Diagnostics tab" on page 98.

## List of components that have diagnostic tests available

- MPC (DSPs)
- Timeswitch (depending on the switch type, diagnostics might not be available)

## To view available diagnostic tests

The available diagnostic tests for each component appear in the Diagnostic page of the Maintenance window. Click a component to see the diagnostic tests available for that component.

## If a diagnostic test fails or cannot be run

If a warning box appears, the diagnostic test cannot be run because a prerequisite condition has not been met. If a diagnostic test fails, the failure is indicated at the bottom of the Diagnostic tab.

In both cases, check the Alarm Monitor to determine the reason and the appropriate action to take. (See "Detecting, isolating, and fixing hardware problems" on page 81.)

## To run a diagnostic test

**Note:** See "Starting and stopping components" on page 106 for details about courtesy stopping a component. Nortel Networks recommends that you courtesy stop rather than stop a component if possible.

1 From the left pane of the Maintenance window, select the hardware component for which you want to run a diagnostic test.

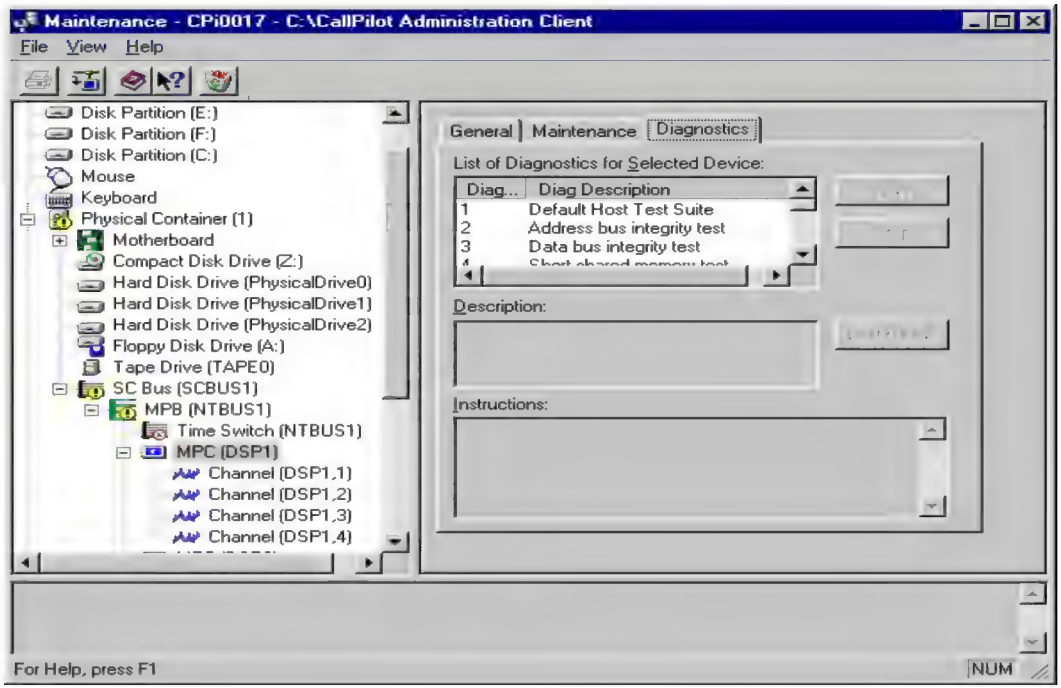
2 From the right pane, click the Maintenance tab.

**Result:** The Maintenance page appears.

3 Stop the component.

4 From the right pane, click the Diagnostic tab.

**Result:** The Diagnostic page appears.



5 Select the diagnostic test you want to run.

6 Click Run.

7 View the diagnostic test results at the bottom of the Diagnostic page.

# Viewing last diagnostic results

## Introduction

If the Alarm Monitor and Event Browser do not provide a solution to a hardware problem, a component might need to be replaced or serviced. If the problem rests with a component that is not replaceable because it is not a physical entity (such as the timeswitch), you must replace its parent component or contact technical support, depending on the component.

Replaceable parts are called Field Replaceable Units (FRUs). View the last diagnostic test result in the Diagnostic tab of the Maintenance window to obtain a list of FRUs that, when replaced, will likely fix the problem.

**Notes:**

1. For general information on investigating hardware problems, see "Detecting, isolating, and fixing hardware problems" on page 81.
2. For a description of the Diagnostic tab, see "The Diagnostics tab" on page 98.

## Field replaceable units

When you view the last results of a failed diagnostic test, a Diagnostic Result description appears at the bottom of the Diagnostic tab. This description includes a list of components that might have caused the problem.

Each FRU is shown with a percentage that represents how probable it is that the component caused the hardware problem. Use these percentages as a guide to determine which component to try replacing first; the higher the percentage of probability, the better the chance that replacing the FRU will fix the problem.

## To view the last diagnostics result

1 From the left pane of the Maintenance window, select the hardware component.

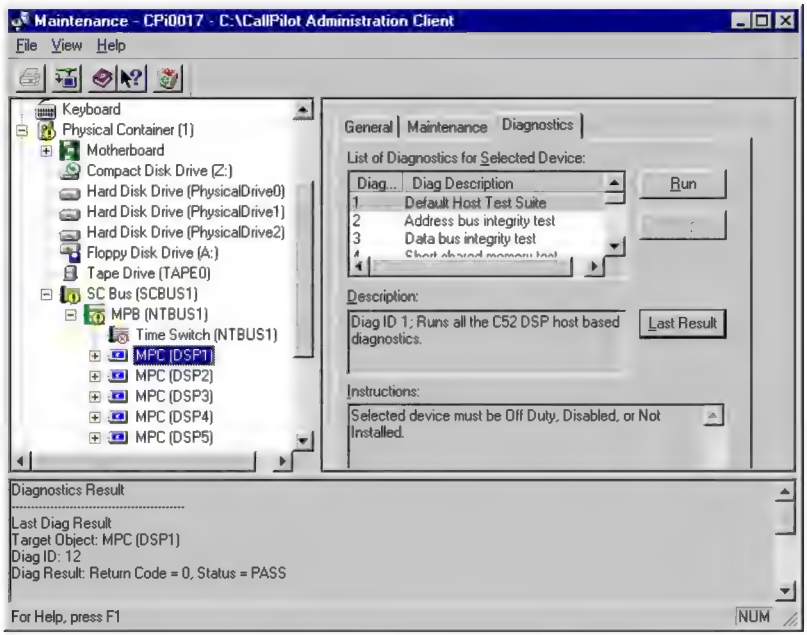
**Result:** The General page appears.

2 From the right pane, click the Diagnostics tab.

**Result:** The Diagnostics page appears.

3 Click Last Result.

**Result:** The results of the last diagnostic test appear at the bottom of the Diagnostics page.




4 View the last results to determine what action to take.

## Last diagnostic results

The results of the last diagnostic test display the following information at the bottom of the Diagnostic page:

| Information | Description |
|---|---|
| Target Object | This is the component selected in the tree. |
| Diag ID | This is the ID of the diagnostic test that was run. The diagnostics IDs and descriptions are listed in the List of Diagnostics for Selected Device window on the Diagnostics page. |
| Diag result | The diagnostic result includes a return code and whether the diagnostic test passed or failed. |
| Result Description | This section appears only when the diagnostic test fails. This is a more detailed description of the problem. This description includes the following:<br>■ the error that was encountered<br>■ a list of components that might have caused the error with a probability percentage<br>■ troubleshooting instructions |

# Obtaining replacement part numbers

## Introduction

If you determine that a component needs to be replaced, contact your distributor.

The Replacement tab in the Maintenance window provides component information. However, your distributor has the latest part number information. The Replacement tab is not available on all platforms.

# Chapter 5

# System utilities

## In this chapter


Overview 118
Diagnostics 119
PEP Maintenance utility 122
Services Monitor 124
Session Trace 126
System Information 134
System Monitor 136
VoiceBridge Monitor 139

# Overview

## Introduction

The following table lists the CallPilot system utilities:

| | |
|---|---|
| Diagnostic | Enables CallPilot startup diagnostics to be enabled or disabled (turned on or off). |
| PEP Maintenance | Displays a list of installed PEPs and enables PEP uninstall. |
| Services Monitor | Displays the true status of all CallPilot services according to WinNT definition. |
| Session Trace | Provides detailed information about the activity in a user's mailbox and the state of the message waiting indicator (MWI). |
| System Information | Displays particulars about the CallPilot System such as names, keycodes, serial numbers, IP addresses, and system numbers. |
| System Monitor | Displays the status of all CallPilot subsystems related to call processing. |
| VoiceBridge Monitor | Troubleshooting tool that provides phone simulation for the DSE connectivity. |

## Accessing the System Utilities

All CallPilot customer administrator tools are accessible from the server using Start > Programs > CallPilot > System Utilities.

# Diagnostics

## Introduction

The Diagnostics startup utility is a graphical user interface that enables CallPilot startup diagnostics to be enabled or disabled as required by the user or the system.

CallPilot startup diagnostics automatically identifies hardware problems that might exist when the system and its services are started (DSP, TimeSwitch, SCbus).

This tool saves time during system maintenance operations where restarts or Call Processing services restarts are required.

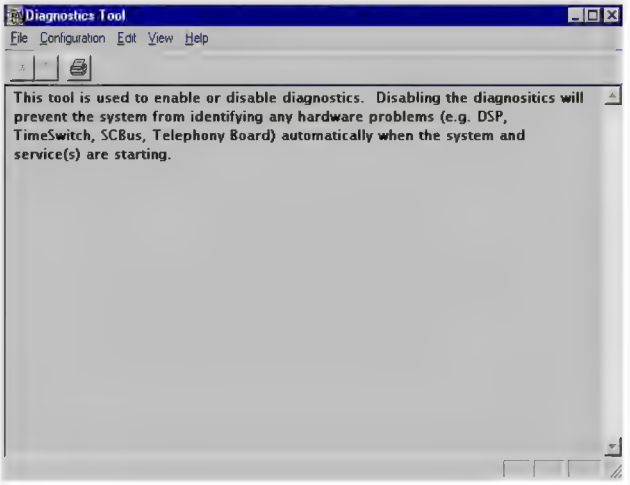
There are three recommended steps:

- Use the Diagnostics tool to turn off CallPilot startup diagnostics.
- Perform system maintenance.
- Use the Diagnostics tool to turn on CallPilot startup diagnostics.

## To access the startup Diagnostic Tool utility

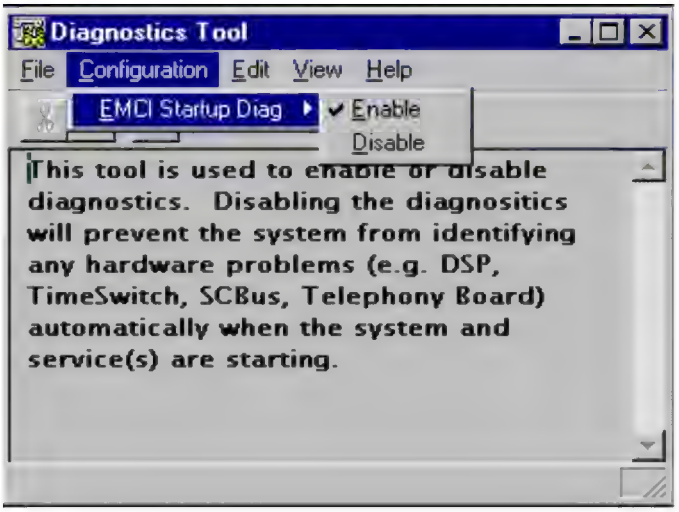
From the Windows Start menu, click Programs > CallPilot > System Utilities > Diagnostic Tool.

**Result:** The Diagnostics Tool window appears.


Diagnostics Tool
File Configuration Edit View Help
This tool is used to enable or disable diagnostics. Disabling the diagnositics will prevent the system from identifying any hardware problems (e.g. DSP, TimeSwitch, SCBus, Telephony Board) automatically when the system and service(s) are starting.

## To enable startup diagnostics

From the menu, select Configuration > EMCI Startup Diag > Enable.


Diagnostics Tool
File
Configuration
Edit
View
Help
EMCI Startup Diag
Enable
Disable
This tool is used to enable or disable diagnostics. Disabling the diagnositics will prevent the system from identifying any hardware problems (e.g. DSP, TimeSwitch, SCBus, Telephony Board) automatically when the system and service(s) are starting.

## To disable startup diagnostics

From the menu, select Configuration > EMCI Startup Diag > Disable.

**Note:** Nortel Networks recommends that you leave the startup diagnostics turned on.

When you disable CallPilot startup diagnostics; you prevent CallPilot from automatically identifying hardware problems that might exist when the system and its services are started (DSP, TimeSwitch, SCbus).

# PEP Maintenance utility

## Introduction

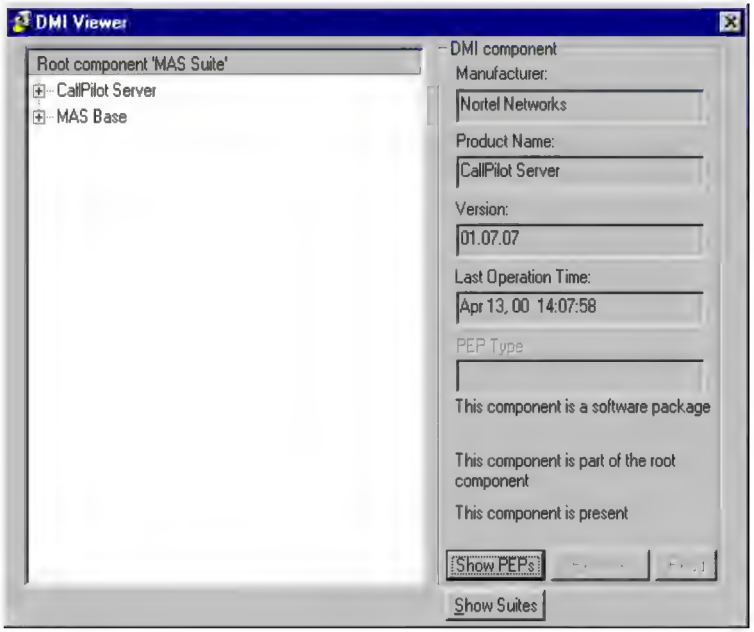
The PEP Maintenance utility displays a list of all installed PEPs on the server and enables you to uninstall PEPS.

For information on uninstalling PEPs, refer to "Installing PEPs" on page 338.

## To access the PEP Maintenance utility

From the Windows Start menu, click Programs > CallPilot > System Utilities > PEP Maintenance.

The DMI Viewer window appears.

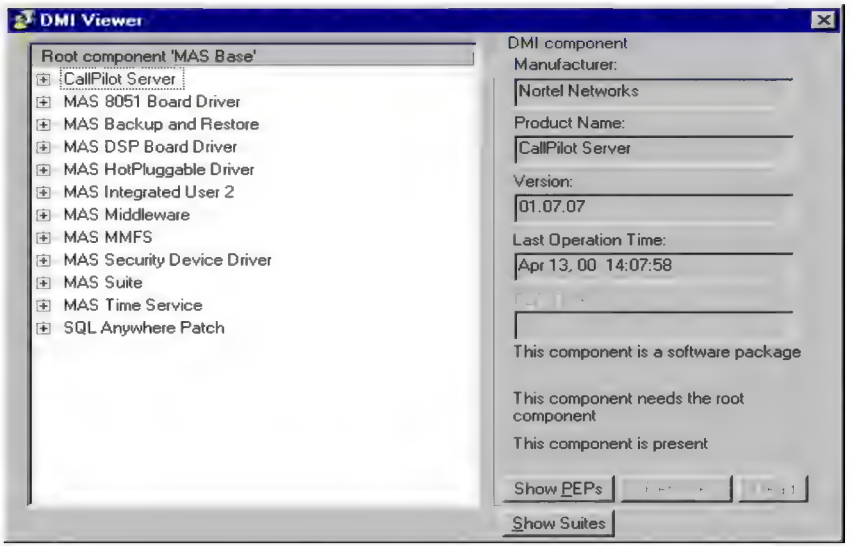


## To view a list of all installed PEPs

1 Click the component to display the PEP list.

2 Click Show PEPs.

**Result:** A list of all installed PEPs appears to the right of the window.



# Services Monitor

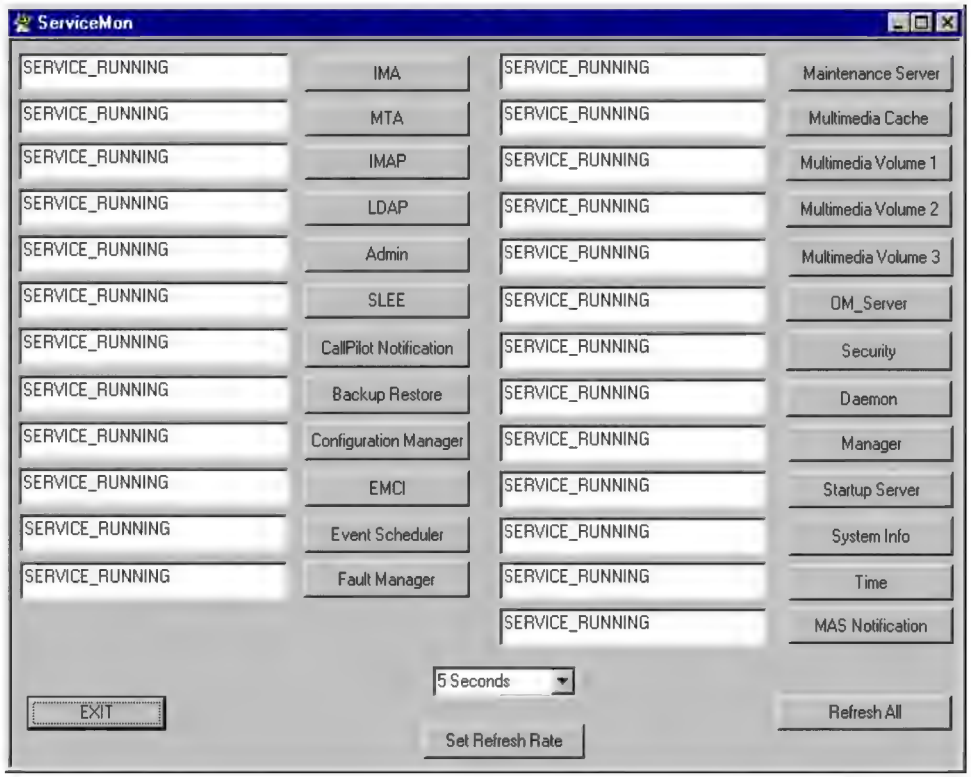
## Introduction

The Services Monitor is a graphical user interface tool that helps to determine whether the CallPilot server is fully operational. It displays true states of the CallPilot services according to Windows NT definition, including the states that are not available through the control panel.

## To access the Services Monitor

From the Windows Start menu, click Programs > CallPilot > System Utilities > Service Monitor.

**Result:** The ServiceMon window appears.



## Using the Services Monitor

The Services Monitor provides the status of each CallPilot service (for example, running, any pending or pausing state).

The Refresh All button enables the display to be refreshed. Use the Set Refresh Rate button to set the rate of refresh or set to none.

**Note:** The fact that a service is running does not necessarily mean that it is fully operational. It might require some initialization, database connections, internal data structures, and so on.

# Session Trace

## Introduction

The Session Trace tool allows you to obtain detailed information about the activity in a user's mailbox and the state of the message waiting indicator (MWI). The session information includes

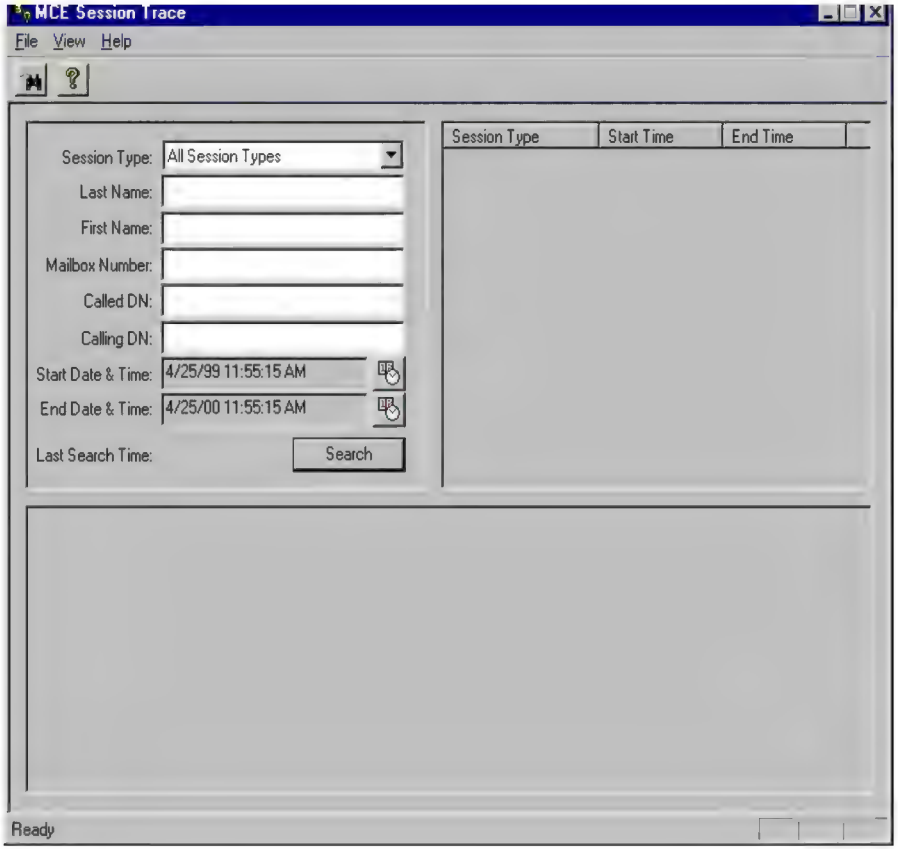
- voice messaging
- call answering
- express messaging activity (messages composed and sent, or left in a mailbox)
- the number of messages played or unplayed at the beginning, middle, and end of a session
- messages and personal distribution lists restored into a mailbox
- the last change to the MWI (turned on or off, or untouched)

This session information allows an administrator or technician to study the state of a user's mailbox and the MWI, and to use that information to follow up on any user complaints. For example, a user might complain that the MWI was on, but no voice messages were in the mailbox when the user logged on. The session information might tell the administrator why the MWI was turned on.

## To access the session trace tool

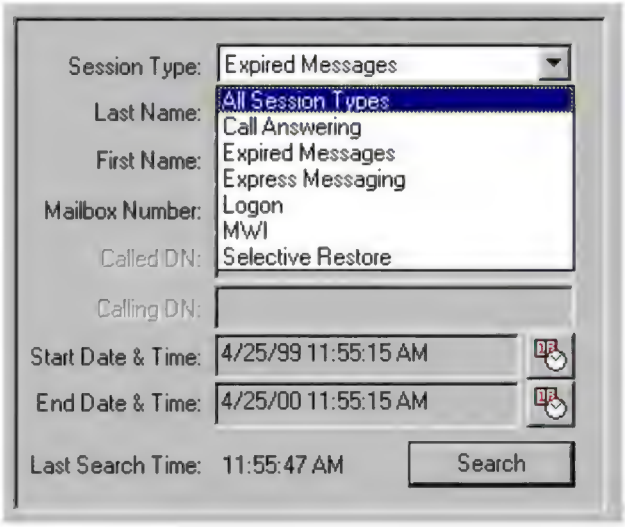
From the Windows Start menu, click Programs > CallPilot > System Utilities > Session Trace Tool.

**Result:** The MCE Session Trace window appears.


MCE Session Trace
File View Help
Session Type:
All Session Types
Last Name:
First Name:
Mailbox Number:
Called DN:
Calling DN:
Start Date & Time:
4/25/99 11:55:15 AM
End Date & Time:
4/25/00 11:55:15 AM
Last Search Time:
Search
Session Type
Start Time
End Time
Ready

## To find a session

1 From the Session Type drop-down menu, select the type of session.




To display a list of all session types, select All Session Types.

2 Enter as much information in the search criteria fields in the window to identify the session you want to view.

To display a list of all users for the selected Session Type, leave the search criteria fields blank.

3 Click Search to initiate the search.

**a.** If you did not enter any user information, a list of users matching the Session Type appears on the bottom of the window.

To select a user from the list, double-click the user name to display session type information.

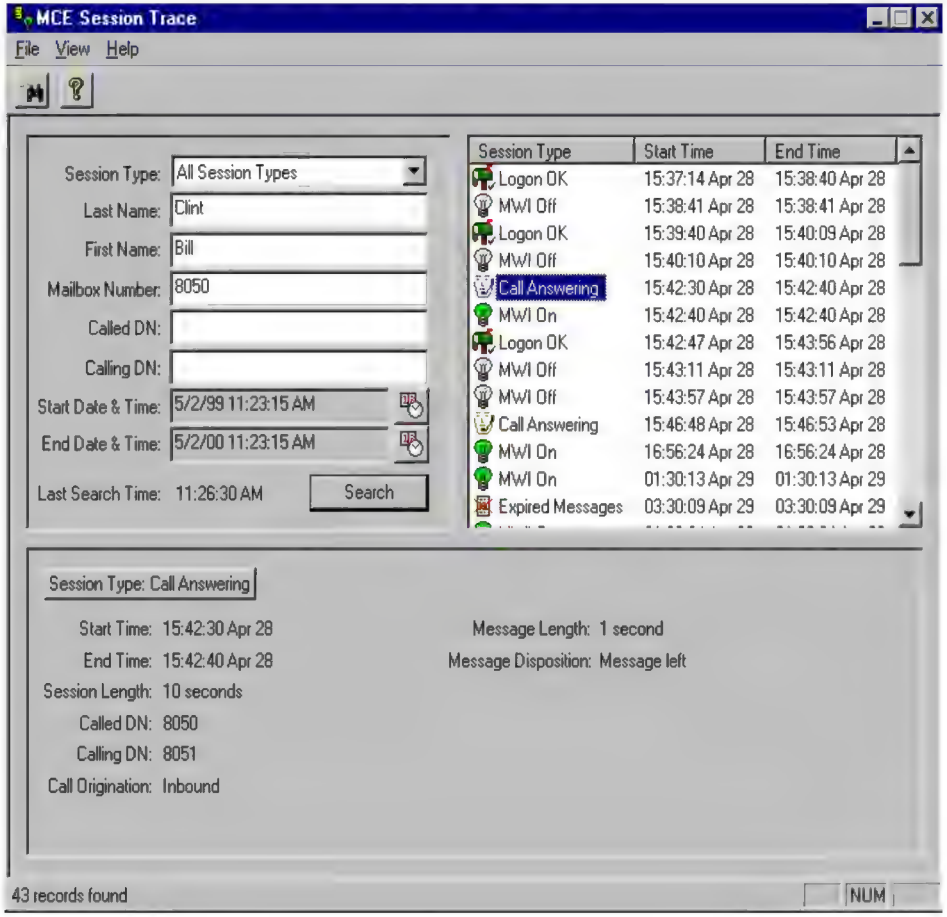
**b.** If you selected All Session Types for a user, the session type information appears to the right of the window.

4 Double-click the session type to display the session information.

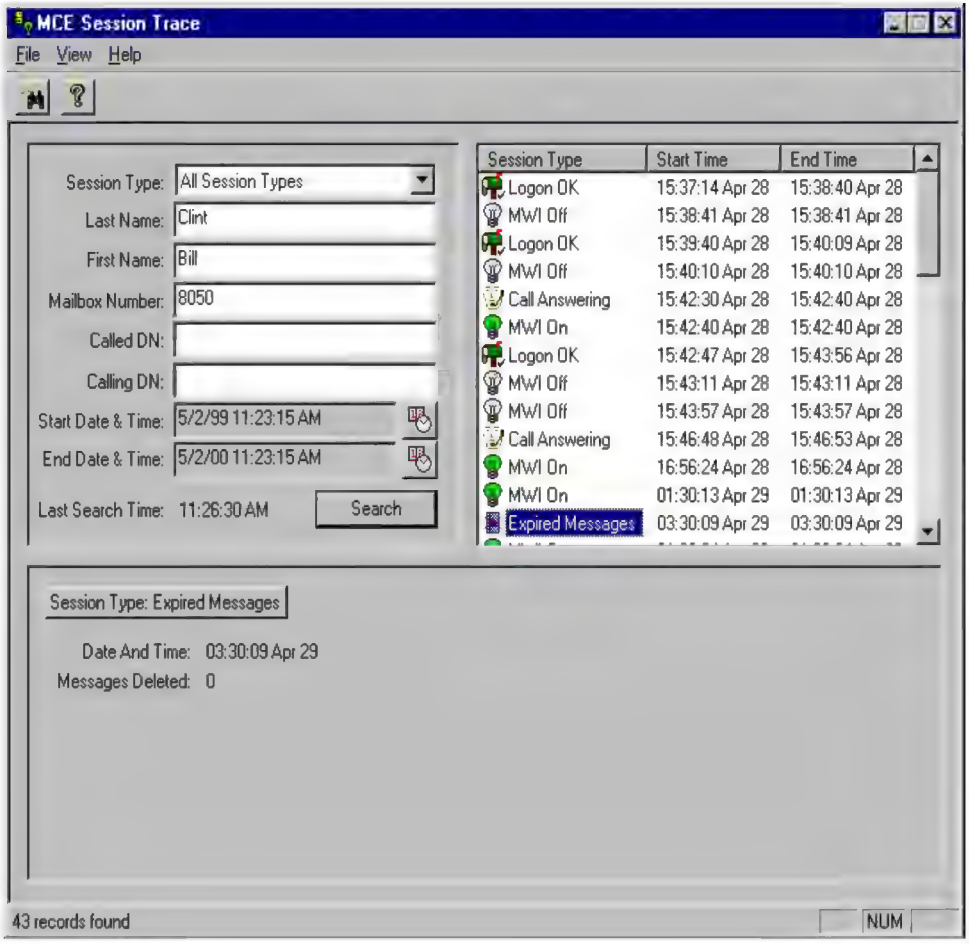
**Result:** The Session Type information appears on the bottom of the window.

# Session type information

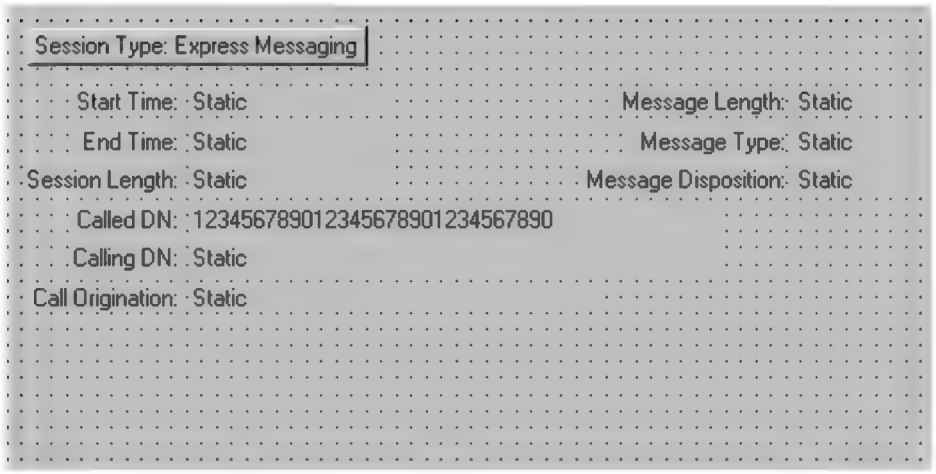
## Call Answer session type information


MCE Session Trace
File View Help
Session Type: All Session Types
Last Name: Clint
First Name: Bill
Mailbox Number: 8050
Called DN:
Calling DN:
Start Date & Time: 5/2/99 11:23:15 AM
End Date & Time: 5/2/00 11:23:15 AM
Last Search Time: 11:26:30 AM
Search
Session Type
Start Time
End Time
Logon OK 15:37:14 Apr 28 15:38:40 Apr 28
MWI Off 15:38:41 Apr 28 15:38:41 Apr 28
Logon OK 15:39:40 Apr 28 15:40:09 Apr 28
MWI Off 15:40:10 Apr 28 15:40:10 Apr 28
Call Answering 15:42:30 Apr 28 15:42:40 Apr 28
MWI On 15:42:40 Apr 28 15:42:40 Apr 28
Logon OK 15:42:47 Apr 28 15:43:56 Apr 28
MWI Off 15:43:11 Apr 28 15:43:11 Apr 28
MWI Off 15:43:57 Apr 28 15:43:57 Apr 28
Call Answering 15:46:48 Apr 28 15:46:53 Apr 28
MWI On 16:56:24 Apr 28 16:56:24 Apr 28
MWI On 01:30:13 Apr 29 01:30:13 Apr 29
Expired Messages 03:30:09 Apr 29 03:30:09 Apr 29
Session Type: Call Answering
Start Time: 15:42:30 Apr 28
End Time: 15:42:40 Apr 28
Session Length: 10 seconds
Called DN: 8050
Calling DN: 8051
Call Origination: Inbound
Message Length: 1 second
Message Disposition: Message left
43 records found
NUM

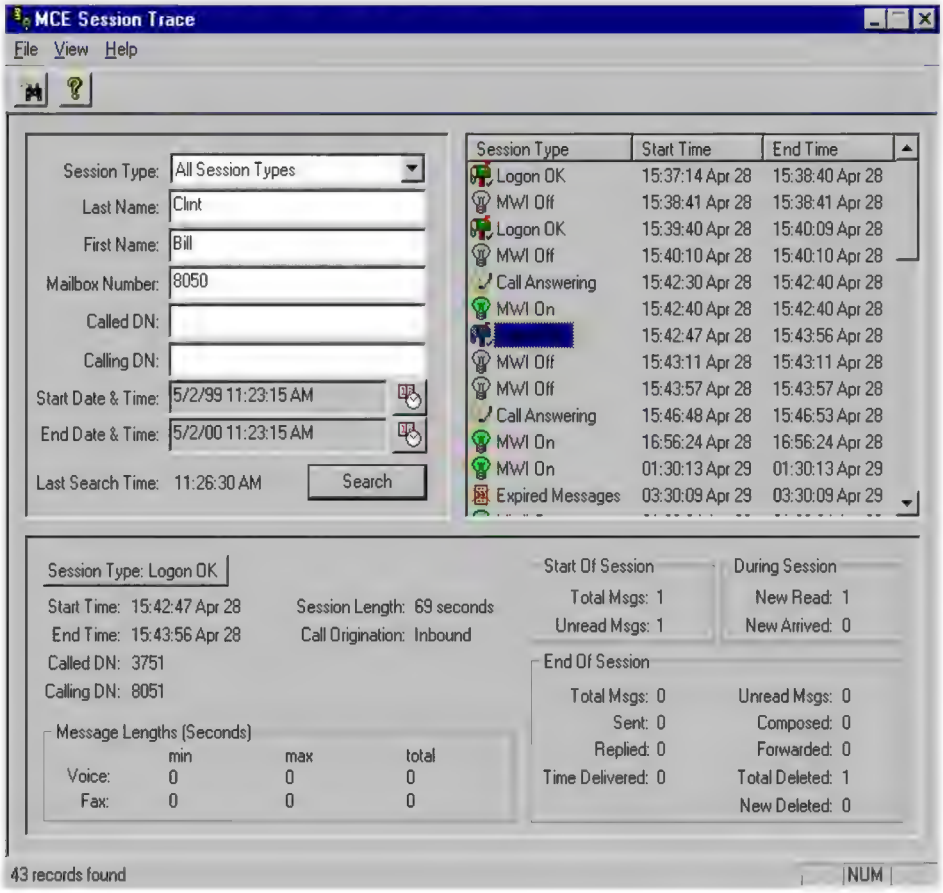
## Expired messages session type information


MCE Session Trace
File View Help
Session Type: All Session Types
Last Name: Clint
First Name: Bill
Mailbox Number: 8050
Called DN:
Calling DN:
Start Date & Time: 5/2/99 11:23:15 AM
End Date & Time: 5/2/00 11:23:15 AM
Last Search Time: 11:26:30 AM
Search
Session Type
Start Time
End Time
Logon OK 15:37:14 Apr 28 15:38:40 Apr 28
MWI Off 15:38:41 Apr 28 15:38:41 Apr 28
Logon OK 15:39:40 Apr 28 15:40:09 Apr 28
MWI Off 15:40:10 Apr 28 15:40:10 Apr 28
Call Answering 15:42:30 Apr 28 15:42:40 Apr 28
MWI On 15:42:40 Apr 28 15:42:40 Apr 28
Logon OK 15:42:47 Apr 28 15:43:56 Apr 28
MWI Off 15:43:11 Apr 28 15:43:11 Apr 28
MWI Off 15:43:57 Apr 28 15:43:57 Apr 28
Call Answering 15:46:48 Apr 28 15:46:53 Apr 28
MWI On 16:56:24 Apr 28 16:56:24 Apr 28
MWI On 01:30:13 Apr 29 01:30:13 Apr 29
Expired Messages 03:30:09 Apr 29 03:30:09 Apr 29
Session Type: Expired Messages
Date And Time: 03:30:09 Apr 29
Messages Deleted: 0
43 records found
NUM

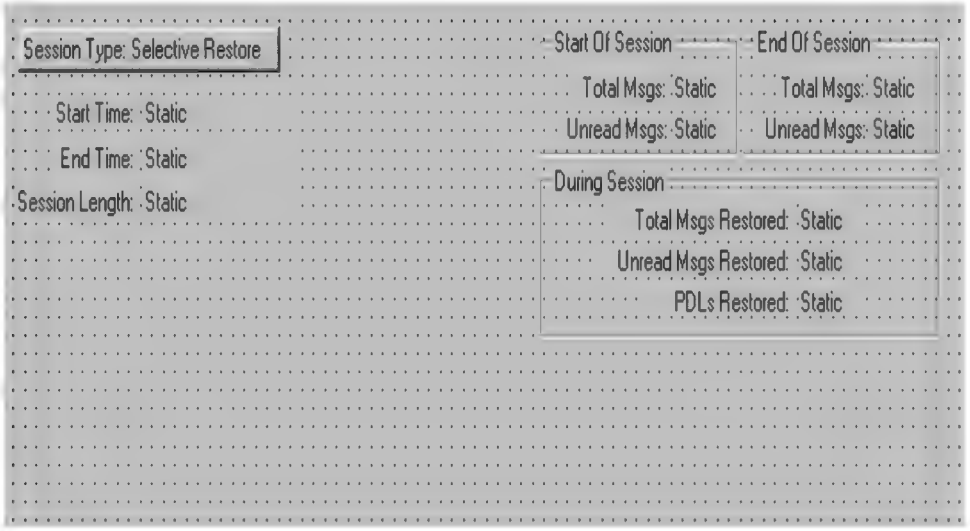
## Express messaging session type information



## Logon session type information


MCE Session Trace
File View Help
Session Type: All Session Types
Last Name: Clint
First Name: Bill
Mailbox Number: 8050
Called DN:
Calling DN:
Start Date & Time: 5/2/99 11:23:15 AM
End Date & Time: 5/2/00 11:23:15 AM
Last Search Time: 11:26:30 AM
Search
Session Type | Start Time | End Time
Logon OK 15:37:14 Apr 28 15:38:40 Apr 28
MWI Off 15:38:41 Apr 28 15:38:41 Apr 28
Logon OK 15:39:40 Apr 28 15:40:09 Apr 28
MWI Off 15:40:10 Apr 28 15:40:10 Apr 28
Call Answering 15:42:30 Apr 28 15:42:40 Apr 28
MWI On 15:42:40 Apr 28 15:42:40 Apr 28
15:42:47 Apr 28 15:43:56 Apr 28
MWI Off 15:43:11 Apr 28 15:43:11 Apr 28
MWI Off 15:43:57 Apr 28 15:43:57 Apr 28
Call Answering 15:46:48 Apr 28 15:46:53 Apr 28
MWI On 16:56:24 Apr 28 16:56:24 Apr 28
MWI On 01:30:13 Apr 29 01:30:13 Apr 29
Expired Messages 03:30:09 Apr 29 03:30:09 Apr 29
Session Type: Logon OK
Start Time: 15:42:47 Apr 28
End Time: 15:43:56 Apr 28
Called DN: 3751
Calling DN: 8051
Session Length: 69 seconds
Call Origination: Inbound
Message Lengths (Seconds)
min max total
Voice: 0 0 0
Fax: 0 0 0
Start Of Session
Total Msgs: 1
Unread Msgs: 1
During Session
New Read: 1
New Arrived: 0
End Of Session
Total Msgs: 0
Sent: 0
Replied: 0
Time Delivered: 0
Unread Msgs: 0
Composed: 0
Forwarded: 0
Total Deleted: 1
New Deleted: 0
43 records found
NUM

## Selective restore session type information



# System Information

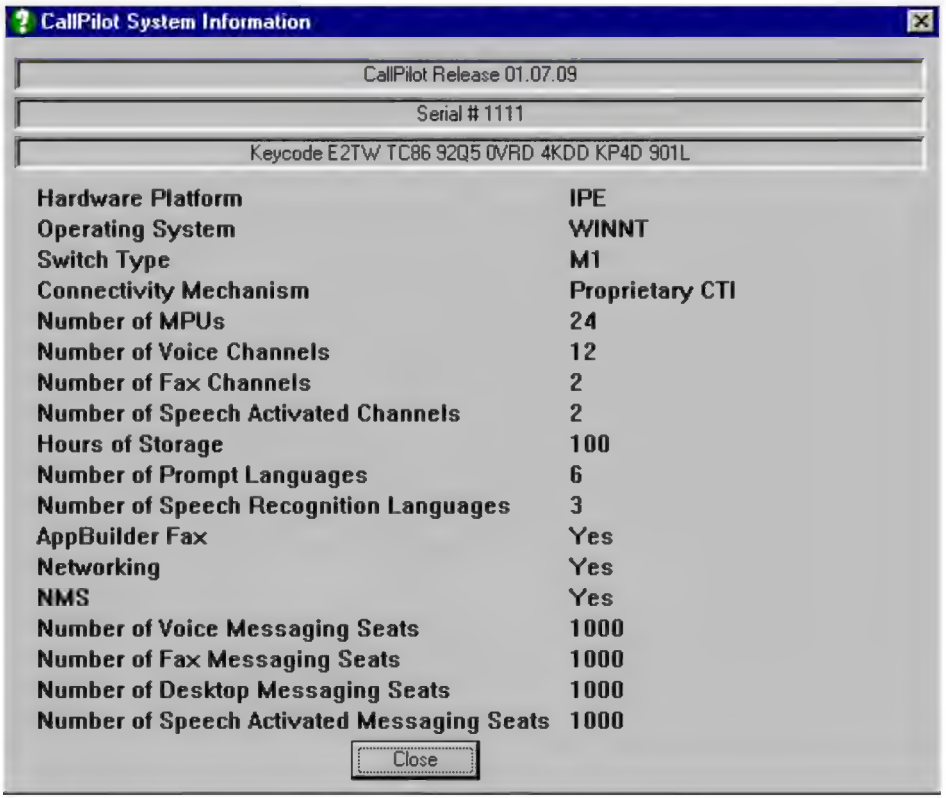
## Introduction

Use this utility to view particulars about the CallPilot system, such as names, keycodes, serial numbers, IP addresses, and system numbers.

## To access the System Information utility

From the Windows Start menu, choose Programs > CallPilot > System Utilities > System Information.

**Result:** The CallPilot System Information window appears.


CallPilot System Information
CallPilot Release 01.07.09
Serial # 1111
Keycode E2TW TC86 92Q5 0VRD 4KDD KP4D 901L
Hardware Platform IPE
Operating System WINNT
Switch Type M1
Connectivity Mechanism Proprietary CTI
Number of MPUs 24
Number of Voice Channels 12
Number of Fax Channels 2
Number of Speech Activated Channels 2
Hours of Storage 100
Number of Prompt Languages 6
Number of Speech Recognition Languages 3
AppBuilder Fax Yes
Networking Yes
NMS Yes
Number of Voice Messaging Seats 1000
Number of Fax Messaging Seats 1000
Number of Desktop Messaging Seats 1000
Number of Speech Activated Messaging Seats 1000
Close

## To use the System Information utility

Use this utility to view CallPilot system information at a glance.

After viewing the information on this screen, click Close to close the window.

# System Monitor

## Introduction

The System Monitor is a graphical user interface based tool that provides a single point of view of CallPilot call processing status at any time. The status provided reflects the true internal status of the Call Processing subsystem, including all related call processing components. This eliminates the need to use multiple tools to get the same information.

The System Monitor queries the current status of each component it is monitoring and displays them in a graphical user interface. The status of each service is obtained from the Windows NT Service Controller; Middleware Components status are obtained from the CT Media server; and the DSP and Call channels status are obtained by querying Middleware.

This tool shows the status of

- CallPilot Critical Services related to call processing
- CT Media-based Middleware Services
- CallPilot Call Channels and Media Channels

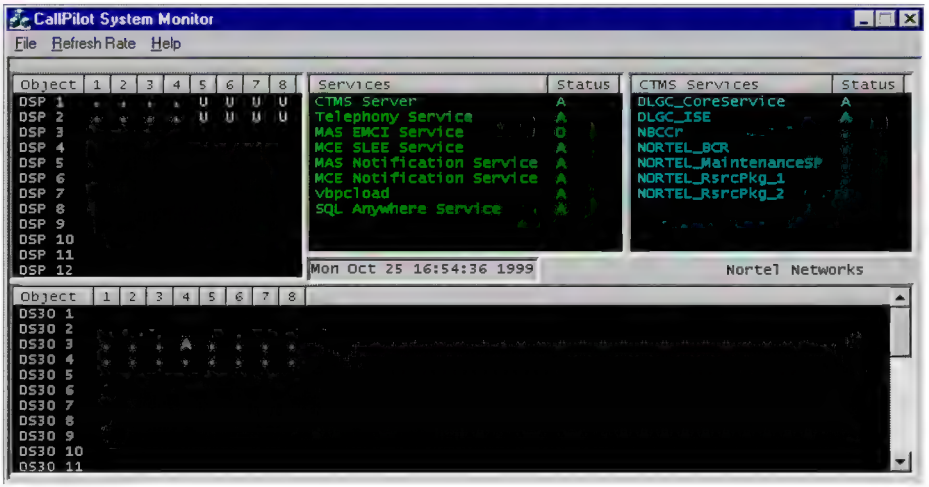
System Monitor is a nondestructive tool that does not alter the behavior of any CallPilot components.

**Note:** Users of this tool require an understanding of CallPilot and the components they want to monitor.

## To access the System Monitor

From the Windows Start menu, click Programs > CallPilot > System Utilities > System Monitor.

**Result:** The CallPilot System Monitor window appears.




## User interface

The user interface comprises four main areas listed below. Each area indicates the status of the particular components of the CallPilot server.

1. Services Area for Critical Windows NT-based services
2. CT Media Services Area for Middleware-based services
3. Call Channel Area for Call Arrival/Departure activities
4. Media Channel Area for DSP channel usage activities

### CallPilot Critical Services

Critical Services needed for CallPilot Call Processing include

- CT Media Server Service
- Telephony Server (TAPI) Service
- MAS EMCI Service

- MAS Notification Service
- MCE SLEE Service
- MCE Notification Service
- SQL Anywhere Service
- VBPC Load Service (useful in a DSE system)

### CT Media-based Middleware Services

Middleware resources needed for CallPilot include

- Dialogic CT Media Server Core Service
- Dialogic CT Media Server ISE Service
- Call Channel Resource Service
- Blue Call Router Service
- Media Resource Service
- Maintenance Service Provider Service

### CallPilot Call Channels and Media Channels

Call and media channels needed for CallPilot include

- Multimedia Ports and Call Channel (DSP channel usage as well as Call Channel usage)

### Online Help

To obtain a description of the various status codes for each of the window's components, use the online Help.

### Menu items

The System Monitor tool provides several menu items for configuration:

| | |
|---|---|
| File | Closes the tool. |
| Refresh rate | Changes the refresh rate to a desired level. |
| Help | Displays a legend for each status symbol shown. |

# VoiceBridge Monitor

## Introduction

The VoiceBridge Monitor is a graphical user interface tool that provides help when the CallPilot DSE system is first configured by simulating a phoneset.

It can also be used to troubleshoot phoneset, line, cable, or switch-related problems should they occur.

The simulated phoneset provides the ability to

- answer an incoming call
- make an outbound call
- transfer an incoming call to another extension
- display dialed party extension
- show the carrier presence on the phoneset
- show other characteristics specific to the phoneset being simulated, such as time of day and other features programmed on the phoneset

**Note:** This tool is for DSE only. Users require an understanding of switches involved in DSE connectivity.

## Installing VoiceBridge Monitor

The VoiceBridge Monitor can be installed from the CallPilot Server PEP CD. For information on installing VoiceBridge Monitor, refer to "Installing software for the Lucent, Mitel, and Rolm switch" on page 348.

It takes approximately three minutes to install this tool and requires a system restart.

## To access VoiceBridge Monitor

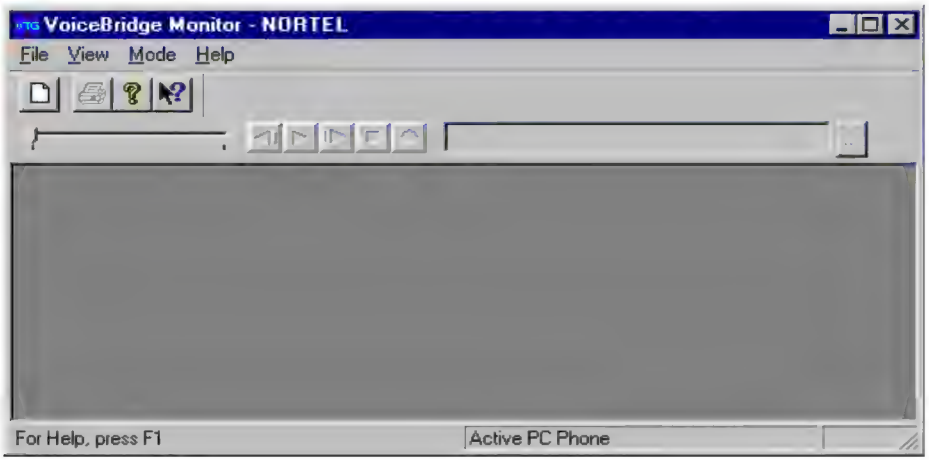
Click Start > Programs > VoiceBridge 2000 > VoiceBridge Monitor.

**ATTENTION**

Do not use this tool when CallPilot is in use as it can affect CallPilot operation. When this tool is connected to an external phoneset, you cannot hear on the soft phoneset.

## Using the VoiceBridge Monitor

Once executed, the VoiceBridge Monitor tool appears.




### Menu items

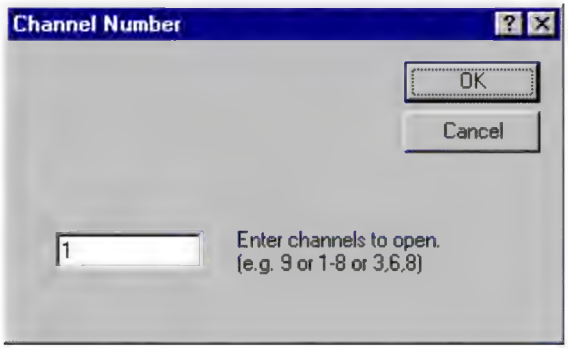
The VoiceBridge Monitor tool includes several menu items for configuration:

| | |
|---|---|
| Mode menu | Allows for the selection of a different mode of operation. Only active mode is used with this tool in DSE connectivity. |
| File menu | Allows for the selection of a preferred channel for monitoring. Some channels can be opened. |

Use the mode menu to select Active PC Phone mode.

**Note:** Nortel Networks recommends that you do not use other modes, as they require additional hardware components to function.

Once the Active PC Phone mode is selected, you can open any or all channels of the VoiceBridge boards from the File menu and view them, as shown below:




## Using soft phones

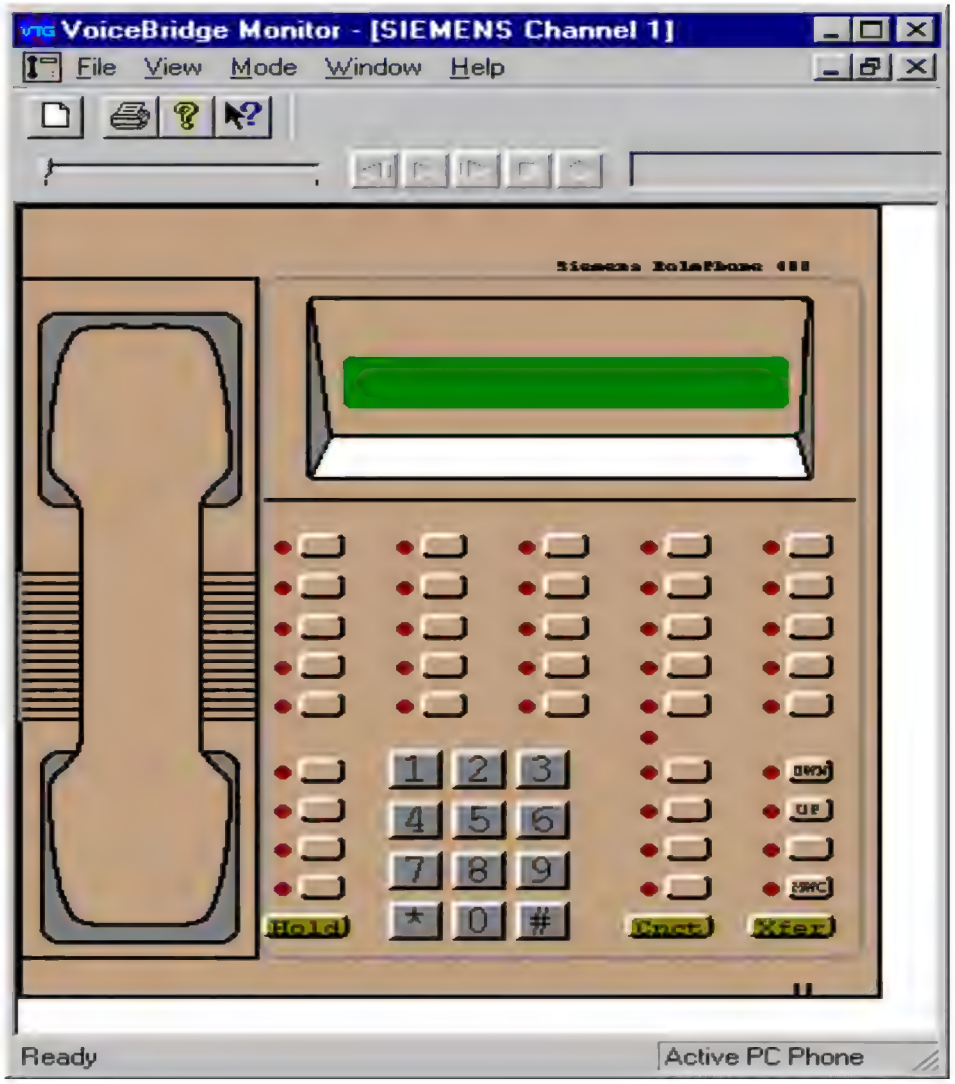
The soft phone is connected to the VoiceBridge 2000 board installed on the CallPilot system and can be considered a physical phoneset. Actions that can be done with a soft phone include

- checking if a carrier exists between the phoneset and the switch
- making a call to the physical phoneset and viewing the phoneset or the DN that is assigned to this CallPilot port
- making a call from a physical phoneset to this soft phone to check if the call shows up on the soft phone
- making a call from a physical phoneset to this phoneset and transferring it to another physical phoneset to see if transfer is possible with CallPilot ports

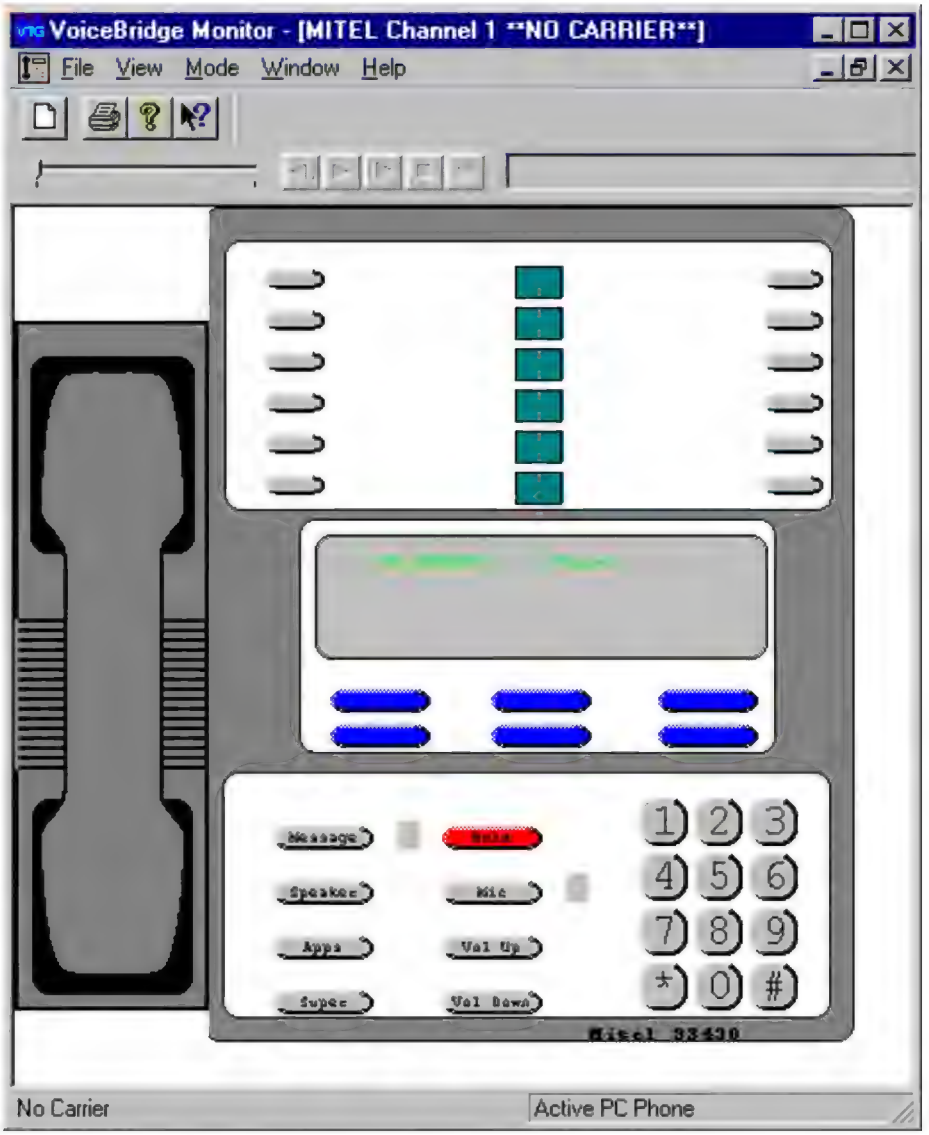
### Soft phone displays

The display of the soft phone varies depending on the switch to which the CallPilot server is connected.

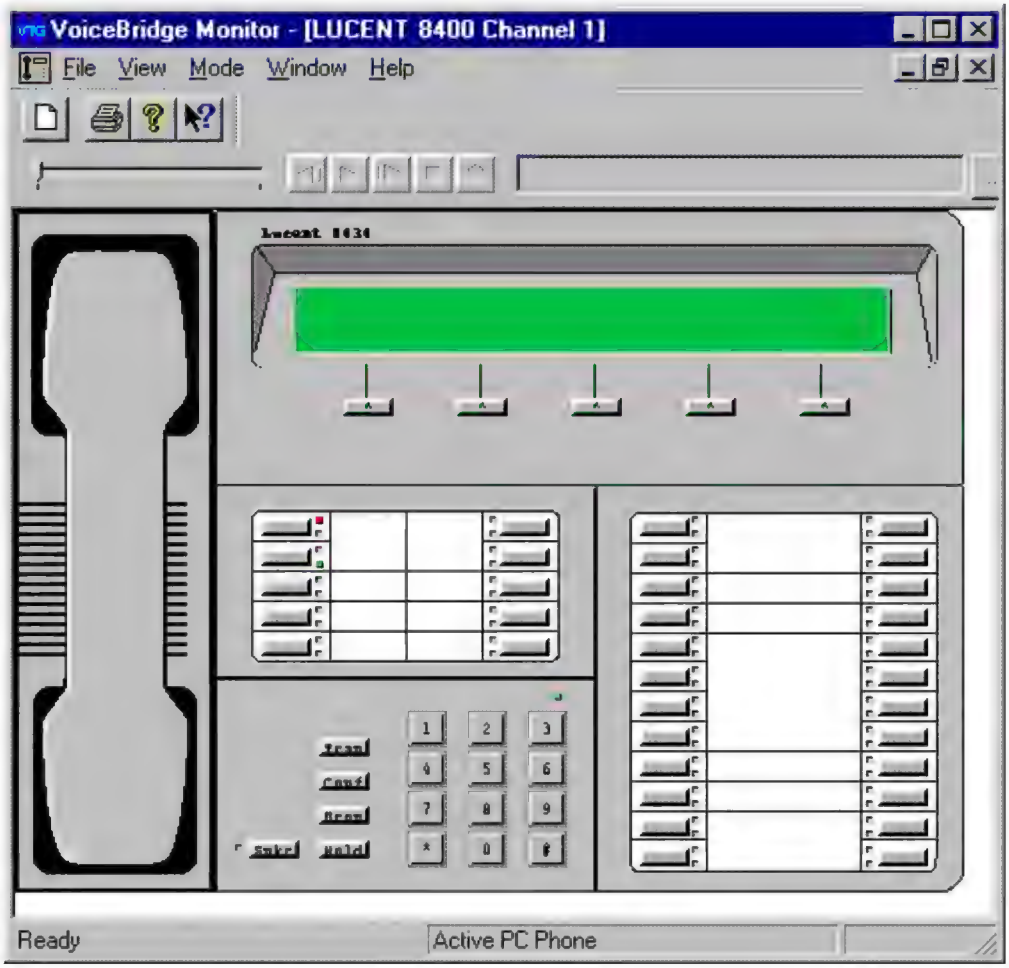
## Rolm phone


VoiceBridge Monitor - [SIEMENS Channel 1]
File View Mode Window Help
1 2 3
4 5 6
7 8 9
* 0 #
Hold
Xfer
Ready
Active PC Phone

## Mitel phone


VoiceBridge Monitor - [MITEL Channel 1 **NO CARRIER**]
File View Mode Window Help
Message
Speaker
Apps
Super
Mic
Vol Up
Vol Down
1 2 3
4 5 6
7 8 9
* 0 #
Mitel 33430
No Carrier
Active PC Phone

## Lucent 8400


VoiceBridge Monitor - [LUCENT 8400 Channel 1]
File View Mode Window Help
Lucent 8434
Ready
Active PC Phone

# Chapter 6

# Performing hardware maintenance

## In this chapter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# Section A: Chassis components

## In this section


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# About the 1001rp server chassis

## Introduction

This section describes procedures for handling and replacing chassis components on the 1001rp server.

## Replacing components

Procedures covered include the following:

- removing covers
- replacing the air filter
- replacing a power supply module
- replacing a cooling fan
- replacing SCSI hard drives
- replacing the fuse
- replacing the status board
- replacing the panel display

# Removing the chassis cover

## Introduction

Access the 7 ISA/1 SBC/12 PCI Slot passive backplane for performing any maintenance activities by removing the cover.

## Requirements

Before removing the cover, gather the following tools:

- flat-blade screwdriver
- antistatic wrist strap

## To remove the top cover

**CAUTION**

**Risk of equipment damage**

Take precautions to protect internal components. Electrostatic discharge (ESD) can render boards damaged or unusable. Wear an ESD wrist strap.

**DANGER**

**Risk of electric shock**

High current inside the chassis can cause severe injury.

1. Power down the server and disconnect all power cords.
2. Loosen the three thumbscrews at the rear of the top cover.
3. Remove the top cover by pulling the cover toward the rear of the chassis, and then lifting it up and off.

# Removing and replacing the front bezel

## Introduction

Two locked doors on the plastic front bezel enable you to access the external peripheral bay, SCA disk drives, 3.5-inch floppy drive, and removable cooling fans. Use the following procedures to remove and replace the front bezel before replacing other system components.

## Doors on the front bezel

## Requirements

To remove the front bezel, you require the following tools:

- keys to the front bezel
- antistatic wrist strap

## The front bezel

## To remove the bezel

**CAUTION**

**Risk of equipment damage**

Do not attempt to move or lift the server before removing the front bezel; the server might disengage from the bezel and fall.

1 Unlock and open the double doors of the front bezel.

2 Firmly grasp the bezel by the hand-holds at either side of the chassis.

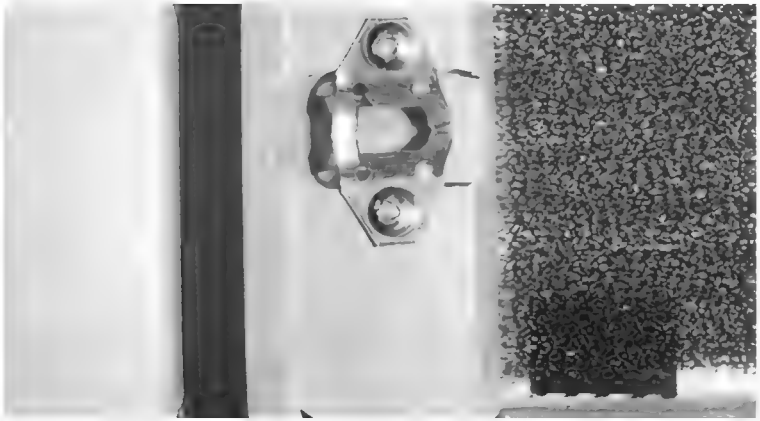
3 Pull the bezel from the chassis.

## What's next?

Once the front bezel is removed, you can change the air filters or replace a hot-swappable cooling fan. The procedures for each of these tasks are located in this section.

## Ball stud on the faceplate

## Groove on the bezel



## To replace the bezel

Once you complete maintenance or part replacement activities, to replace the front bezel, follow these steps.

1. Align the front bezel with the ball studs located at each faceplate corner.
2. Apply pressure evenly until the bezel snaps onto each ball stud.
3. Close the double doors of the front bezel and lock it into place.

# Replacing air filters

## Introduction

Remove and clean air filters every six months in clean environments and every three months in industrial or dirty environments to ensure your server cools and functions properly. If they appear to be damaged or become inefficient, replace the filters.

## Locating the air filters

There are four air filters on the 1001rp server — one inside each of the two doors of the front bezel, and two on the top half of the front bezel. They are made of polyester foam material and are flame retardant.

## Requirements

You require the following equipment to replace air filters:

- the customer's chassis keys

## To replace the front bezel air filter

1. Remove the front bezel from the chassis.
2. Pull filters from the Velcro strips securing them to the bezel.
3. Replace the filter by seating new filter pads evenly over the velcro strips and securing them.
4. Install and lock the front bezel on the chassis.

## See also

To remove the air filter, remove the front bezel. Refer to the procedures for "Removing and replacing the front bezel" in this section.

## To replace the door air filter

1. Unlock and open the front doors.
2. The air filter is trapped between the inside of the door and the wire. The wire pivots near the key lock. Pull the wire away from the key lock to free the air filter.
3. Remove and replace the air filter.
4. Pivot the wire to trap the filter, ensuring that the ends of the wires are pinched inside the door.
5. Close and lock the doors.

# Replacing hot-swappable components

## Introduction

If your system experiences problems with the cooling fan, hard drives, or the power supply, replace these parts without shutting down the server. These hot-swappable components enable you to leave the server on and operational while you replace redundant components.

**Note:** You require a RAID card to replace hard disks without shutting down the system.

## System monitors

The chassis incorporates on-board management features that notify the operator in case of a problem. Power supply, fan, and chassis temperature status are constantly monitored. In the event of a failure, an alarm sounds and the appropriate LED on the front panel turns on as an indication. The LED on the failed power supply module turns from green to red.

## Hot-swappable components

The following components are easily hot-swapped:

- power supplies
- cooling fans
- SCA SCSI hard drives

## Requirements

Before hot-swapping a power supply, cooling fan, or SCSI hard drive, gather the following tools:

- one flat-blade screwdriver
- one Phillips screwdriver
- one antistatic wrist strap

- the replacement power supply, if needed
- the replacement cooling fan module(s), if needed
- the replacement hard drive(s), if needed

  They can be any one or a combination of the following:

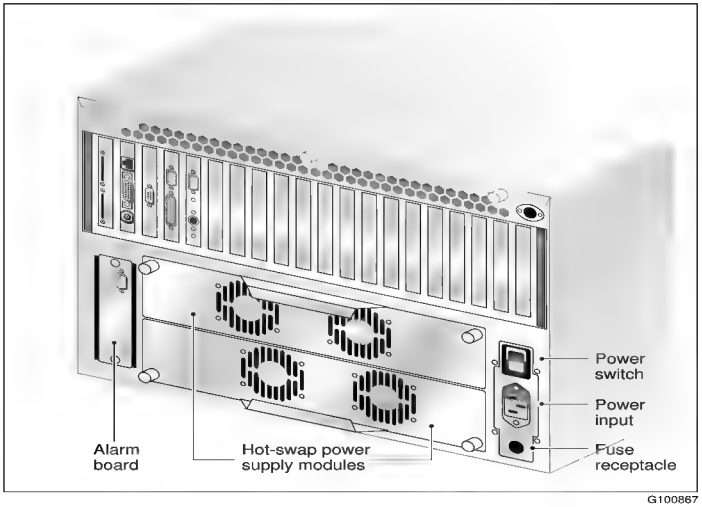
  (1) 4 Gbyte SCSI Hard Disk, hot-swappable

  (2) 9 Gbyte SCSI Hard Disk, hot-swappable

## When to hot-swap the power supply

A green LED indicates that the power supply is working properly. If the green LED on the power supply module is unlit or red, the module is failing or has failed. Other indicators are the alarm that sounds and the power supply module LED on status display that turns red.

## The power supply



## To hot-swap a power supply

**DANGER**

**Risk of electric shock**

High current inside the chassis can cause severe injury.

1 Loosen the thumbscrews at the top right and left of the failed power supply module. If needed, use a flat-blade screwdriver. The thumbscrew must rotate freely and not contact the chassis threads.

2 Pull the power supply module free from the chassis using the molded horizontal handle on the power supply module.

3 Align the replacement module with the empty chassis bay.

4 Slide the replacement power supply module into the bay until the module is secured by its connector. Use some force, if necessary.

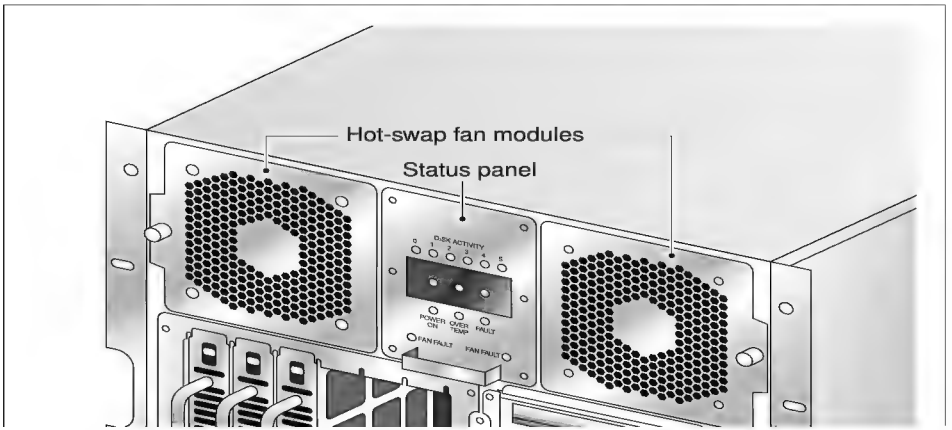
5 Secure the power supply module to the chassis with two thumbscrews at the corners of the power supply faceplate.

**Result:** The power supply LED illuminates green.

**Note:** If the LED does not illuminate, remove and reinstall the power supply with more force. If this does not work, contact your Nortel Networks customer support representative.

## When to hot-swap the fan

When the LED associated with a cooling fan becomes red, the fan requires replacement.




## To hot-swap a cooling fan

1. Remove the front bezel. Use the front panel display LED to locate the defective fan.
2. Loosen the thumbscrew located on the outside of the failed cooling fan module. If needed, use a flat-blade screwdriver.
3. Unseat the cooling fan module by sliding the module horizontally away from the display and toward the rack rail.

   **Result:** The module power connector unseats from the power connector located behind the display and LEDs.
4. Slide the failed cooling fan module out of the chassis.
5. Align the replacement cooling fan module tabs with the four support slots on the chassis. Be sure the module is oriented with the thumbscrew, and insert the tabs into the supporting slots of the chassis.
6. Slide the cooling fan module toward the front panel display and into position.

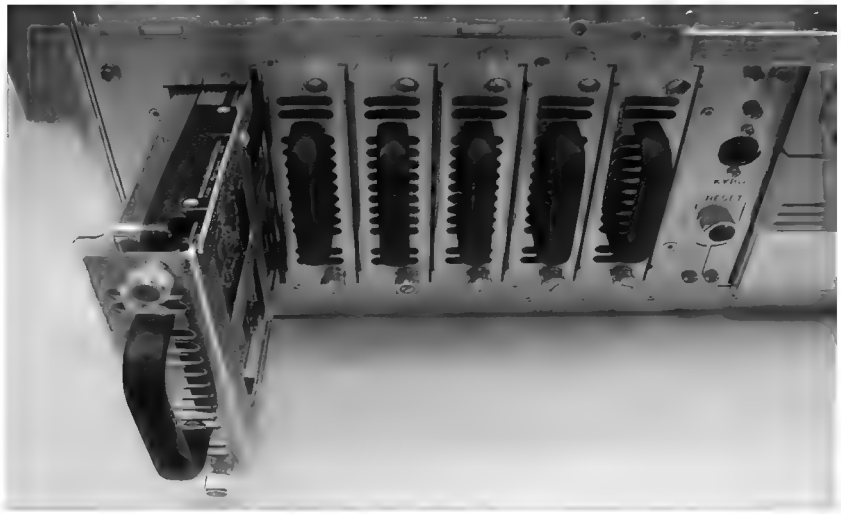
   **Result:** The fan module connects with slight resistance. The fans rotate and pull air into the chassis. The cooling fan LED goes out.
7. Tighten the module's thumbscrew and replace the front bezel.

## When to hot-swap hard drives

With a RAID controller, hot-swap device drivers, and operating system support, SCA SCSI hard drives can be hot-swapped on the 1001rp server. Without the RAID controller, hot-swap device drivers, and operating system support, replacing a drive during server operation can cause a fatal error and force a system restart. If a RAID controller is not installed, shut down the system first and then replace drives.

**Note:** Identify which hard drive to remove using the Windows NT event log.

## Removing hard drives



## To replace hot-pluggable SCA SCSI hard drives

1. Open the front bezel doors.
2. Locate the SCA SCSI drive frame below a cooling fan and beside the media drive.
3. Loosen the two thumbscrews on the hard drive carrier.
4. Remove an existing drive by loosening the four Phillips-head screws that secure it to the carrier.
5. Attach the new drive to the carrier by four Phillips-head screws.

6 Align the carrier with the drive frame and slide it into the chassis. Expect resistance as the carrier and backplane connectors meet.

7 Fasten the two thumbscrews.

8 Close the front bezel and lock it into place.

## What's next?

If the drive you replaced was part of a RAID mirrored system pack, run DAC Administration software under Windows NT to rebuild that drive. If you do not do this, the system is still prone to data loss if another disk fails.

# Replacing the fuse

## Introduction

The fuse is located below the power input socket on the rear panel. When the server's fuse blows, the server stops operating.

**CAUTION**

**Risk of equipment damage and personal injury**

Disconnect power from the server before replacing a fuse.

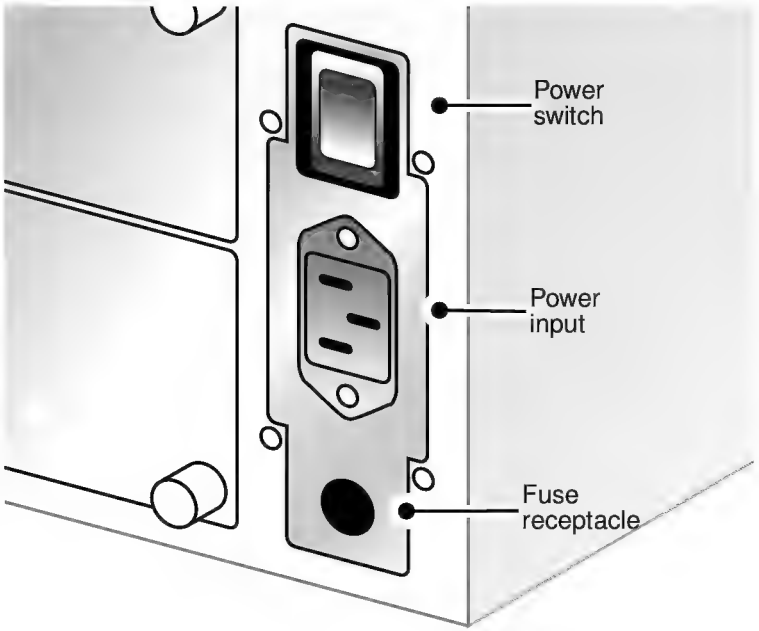
## Requirements

- an approved fuse for replacement

  Two different types of fuses exist for North America and for international use. Ensure that the fuse you are replacing has been approved by Nortel Networks.

- flat blade screwdriver

## AC System only




## To replace the fuse

1. Power off the server.
2. Unplug the power cable from the wall outlet.
3. Unplug the power cable from the power input socket on the server.
4. Unscrew the fuse receptacle.
5. Slide the fuse receptacle out of the fuse chamber.

   **Note:** Observe how the blown fuse is positioned in the receptacle.
6. Remove the blown fuse.
7. Install the approved fuse.
8. Slide the fuse receptacle back into its chamber.
9. Fasten the fuse receptacle with a flat-blade screwdriver.
10. Plug the power cable back into the power input socket on the server.

11 Plug the power cable into the wall outlet.

12 Power on the server.

**ATTENTION**

If the fuse blows after replacement, swap one power supply module with the other. If this does not work, call your Nortel Networks customer support representative.

# Alarm board

## Introduction

The 1001rp server alarm board and panel display monitor and indicate the server status. The confidence test on page 34 fails if the board is defective or damaged. When these units are damaged, replace them immediately.

**CAUTION**

**Risk of equipment damage**

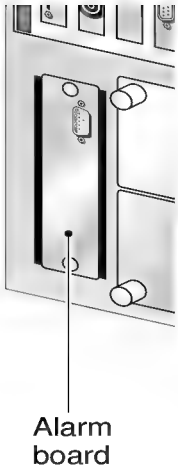
Take precautions to protect computer boards. Electrostatic discharge (ESD) can render boards damaged or unusable. Wear an ESD wrist strap.

## Requirements

Before replacing the status board or panel display, gather the following tools:

- one Phillips screwdriver
- one antistatic wrist strap
- the replacement component(s)

## Alarm board location




## To replace the status board

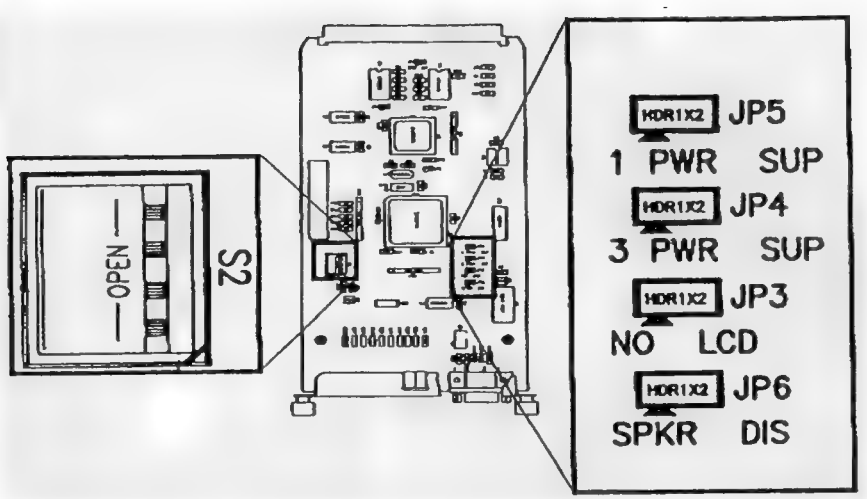
1. Power off the server.
2. Loosen the two thumbscrews securing the faceplate at the left of the 1001rp server power supply modules.
3. Pull the carrier free from the chassis.
4. The status board is secured to the carrier by two Phillips-head screws. Remove the defective status board from the carrier.
5. Secure the replacement status board to the carrier using two Phillips-head screws.
6. Align the carrier with the chassis and slide the board into the chassis. The card encounters some resistance as it meets the connector.
7. Tighten the thumbscrews to secure the faceplate to the chassis.

# Jumpers on the alarm board

## Introduction

This section describes the features enabled or disabled by setting jumpers on the alarm board.

## Jumper block and switch on the alarm board




## Setting jumpers on the alarm board

The jumpers on the alarm board enable or disable sensing and display functions. The default setting enables the sensing or display. The default setting is with the jumpers removed.

## JP6 - do not change

Leave the jumper installed.

## Disarming "No Power" in the bottom bay

Jumper block 1, JP5 : Jumper both pins to instruct the alarm board not to react to no power signal coming from the bottom power supply. Jumper both pins when one power supply is used, and install that supply in the upper power bay. Ensure that both pins are not jumpered to allow the alarm board to sense power status from both upper and lower power supply bays.

## JP4

Jumper block 1, JP4 : not used.

## Display or No display

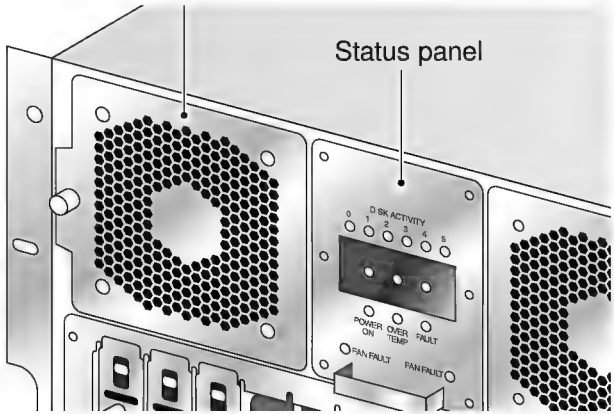
Jumper block 1, JP3 : Jumper both pins to configure the alarm board to send alarm signals to the full array of LEDs. If this jumper is not installed over both pins, the alarm board does not send the correct format of signals to the front panel display.

# Status display

## Locating the display

The display is located at the front of the chassis and is cabled to the rear of the chassis and the Status Board.

## The status panel




## To replace the display

1. Power off the server.
2. Remove the top cover and the front bezel from the chassis.
3. Loosen the four Phillips-head screws securing the display to the front of the chassis.
4. Disconnect the cable and lift the defective display up and out of the chassis.
5. Set the replacement display into position, and secure it to the chassis by replacing the Phillips-head screws.
6. Reconnect the cable.
7. Replace the top cover and front bezel.

# Section B: RAID system

## In this section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Attaching cables to the RAID card 176

Replacing and configuring hard drives 179

Configuring hard disk drives 182

Rebuilding a hard disk in RAID 184

Maintaining RAID hard drives 188

# Overview

## Introduction

A RAID card enables you to expand the capabilities of your server. This section describes the 1001rp server RAID system and the procedures for replacing and configuring its components.

## Included procedures

Procedures covered include the following:

- replacing a RAID card
- cabling a RAID system
- preparing to configure a RAID system
- creating a system drive
- initializing a system drive

# RAID system summary

## Introduction

Redundant Arrays of Inexpensive Disks (RAID) is a technology that can combine two or more drives for fault tolerance and performance. Configure the drive bay in the 1001rp to RAID level 1 array using the optional hardware RAID controller, or as individual drives (non-RAID).

## Drive array bays

There are six Single Connector Architecture (SCA) 3.5-inch full-width drive array bays available to add hot-pluggable disk drives.

## RAID levels

The RAID controller is a PCIRAID SCSI card that provides high-performance disk mirroring. It is always installed in PCI slot 12. RAID Level 1 is always implemented.

- Level 1 - mirroring

  Two equal-capacity disks mirror one another. One disk serves as the backup copy of the other disk. If one drive fails, the other automatically replaces it. This level prevents loss of information and network time.

## RAID software

The Windows NT operating system supports mirroring in software without a hardware RAID controller. This software-only approach is not recommended or supported.

## RAID and hot-swappable components

A RAID controller is also essential to hot-swap SCA SCSI hard drives. If you replace a drive during system operation without the RAID controller, hot-swap device drivers, and operating system support, you can cause a fatal system error, force a system restart, and cause data loss.

# Replacing the RAID card

## Introduction

You can replace or upgrade your RAID card. Follow the procedures in this section to replace a RAID card and reconnect the cables.

## Requirements

Before replacing the RAID card, gather the following tools:

- one Phillips screwdriver
- one antistatic wrist strap
- the replacement RAID card

## To replace the RAID card

1. Review the manufacturer's documentation for the replacement card.
2. Power down the server and disconnect all power cords.
3. Remove the chassis cover and locate the installed RAID card in PCI slot number 12.
4. Disconnect all cabling from the RAID card.
5. Use an adhesive label or a piece of tape to label each cable with its connection.
6. Loosen the screw located at the top of the card's faceplate.
7. Remove the card from the chassis.
8. Unpack the replacement card.
9. Align the replacement card with PCI slot 12.
10. Apply downward pressure until the card is evenly and securely seated in the slot.
11. Secure the card by tightening the screw at the top of the faceplate.

**Note:** If you replace your RAID card and the system does not come up, call Nortel Networks support.

## What's next?

Once the card is secured on the chassis, reconnect the cables.

# Attaching cables to the RAID card

## Introduction

Once you seat the RAID card firmly on the chassis, you need to connect cables to the card. In a RAID configuration, use the SCSI Channel 1 to control the hard disks, and the SCSI Channel 0 to control the tape drive.

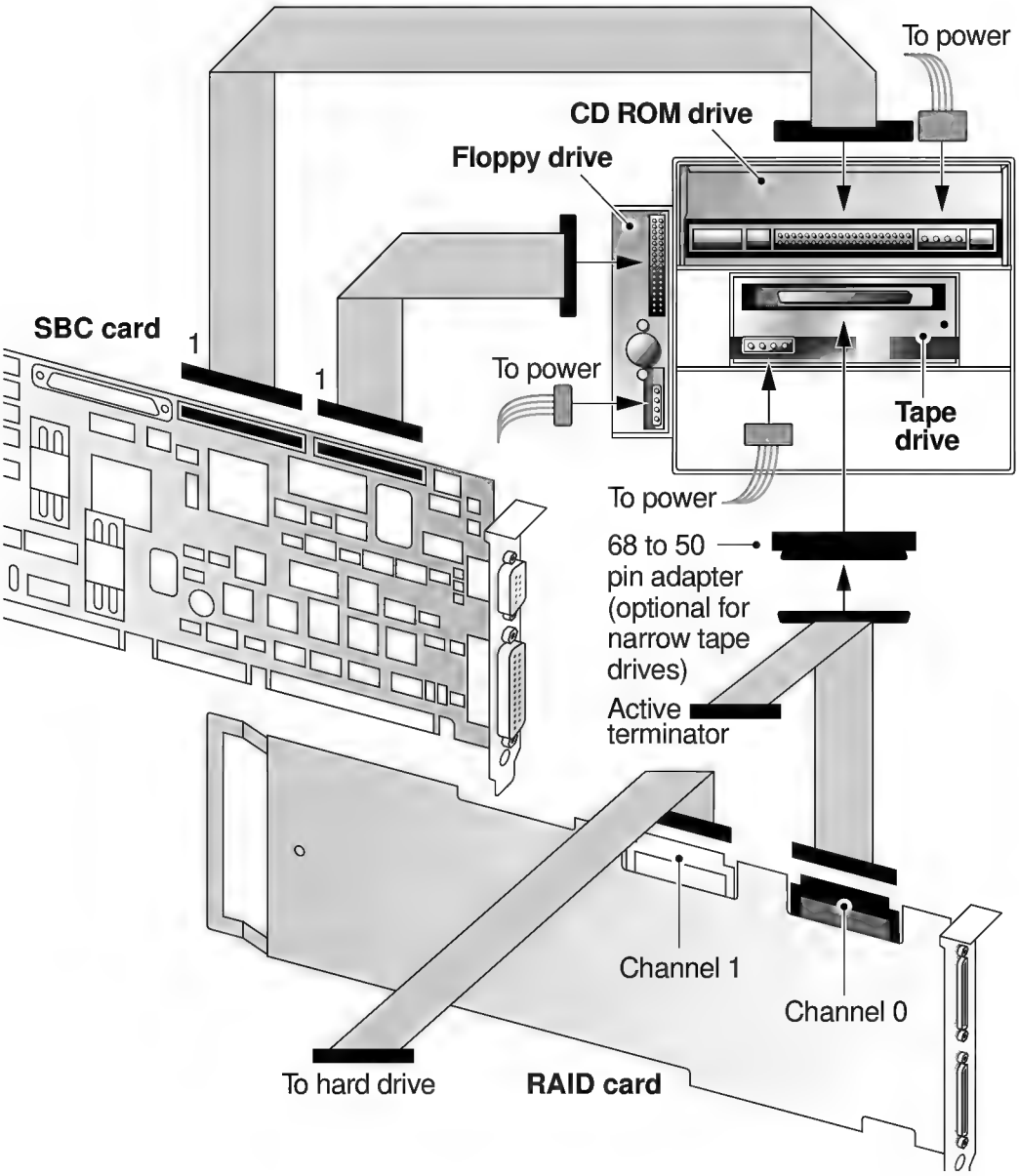
## Requirements

To connect the RAID card cabling, you require the following:

- RAID cables for two header connections

  Both header connections must be cabled. Refer to the connections as Channel 0 and Channel 1
- a properly seated RAID card

**RAID card cabling with a Pentium II or III SBC**




**Note:** This diagram applies to older drives. Newer drives do not have the same adapter.

## To cable hard disk drives in a RAID system

**CAUTION**

**Risk of equipment damage**

Ensure that no cable touches any SBC card component. Heat transfer often causes serious damage to the system.

1 Connect a SCSI cable to Channel 1 on the RAID card.

2 Route the cable to the expansion card area through to the left side of the system, and down to the SCSI backplane.

**Result:** The SCSI backplane provides termination for this SCSI channel.

## To cable a RAID system for a tape drive

1 Connect a second SCSI cable to Channel 0 on the RAID card.

2 Route the cable between the RAID card and the right side of the system chassis to the front of the chassis, and then down through the system to the tape drive.

3 Attach a wide SCSI active terminator as the last device on the cable.

**Note:** The NTRH9034 tape drive cannot provide SCSI bus termination. You must have an Active SCSI terminator as the last device on the SCSI cable. Ensure that the jumper labeled TPWR is enabled on the tape drive. The tape drive must always be connected to the second last connector on the SCSI cable.

- Wide active terminator (Part number A0766997)
  The wide active terminator must be connected to the last connector on the SCSI cable.

## What's next?

Once you have installed and cabled the RAID card, you do not need to configure the card. Power up the system. The card reads the configuration from the drives and configures itself.

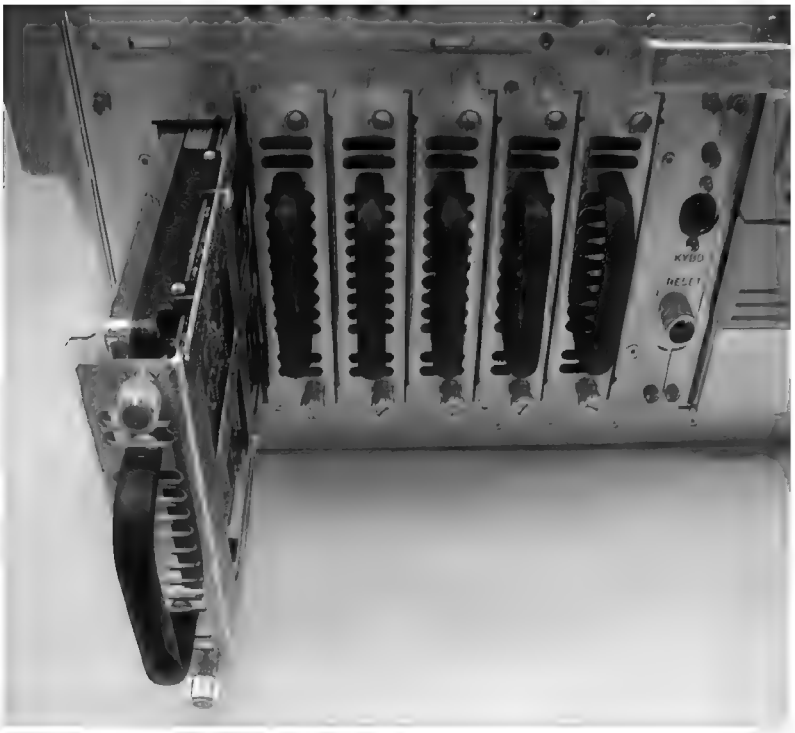
**Note:** If you replace your RAID card and the system does not come up, call your Nortel Networks customer support representative.

# Replacing and configuring hard drives

## Introduction

Replace any of the six SCSI hot-swappable drives from the drive bay if they should fail, or if you want to upgrade. The 1001rp server also operates one additional hard drive from the media drive bay that you can replace. Once you replace hard drives, configure them.

## Replacing hard drives



## RAID SCSI hard drive configuration

The table below indicates proper SCSI drive bay, channel, and ID configurations in the hot-swappable drive bay. The SCSI backplane sets SCSI IDs: as follows:

| Hard drive bay | SCSI unit | SCSI ID |
|---|---|---|
| 1 | (A-0) | Channel 1, ID 0 |
| 4 | (A-1) | Channel 1, ID 3 |
| 2 | (B-0) | Channel 1, ID 1 |
| 5 | (B-1) | Channel 1, ID 4 |
| 3 | (C-0) | Channel 1, ID 2 |
| 6 | (C-1) | Channel 1, ID 5 |
| Front bay | Tape drive | Channel 0, ID 6 |

## Non-RAID SCSI hard drive configuration

The table belowindicates proper SCSI drive bay, channel, and ID configurations in the hot-swappable drive bay. The SCSI backplane sets SCSI IDs as follows:.

| Hard drive bay | SCSI unit | SCSI ID |
|---|---|---|
| 1 | (A-0) | SCSI ctrl, ID 0 |
| 4 | N/A | SCSI ctrl, ID 3 |
| 2 | (B-0) | SCSI ctrl, ID 1 |
| 5 | N/A | SCSI ctrl, ID 4 |
| 3 | (C-0) | SCSI ctrl, ID 2 |
| 6 | N/A | SCSI ctrl, ID 5 |
| Front bay | Tape drive | SCSI ctrl, ID 6 |

**Note:** Do not install drive bays 4, 5, and 6 in the standard non-RAID configuration.

If you have a SCSI CD-ROM drive in a non-RAID hard drive configuration, then the tape drive must have the following SCSI IDs:

| Hard drive bay | SCSI unit | SCSI ID |
|---|---|---|
| Front bay | Tape drive | SCSI ctrl, ID 6 |

## To set SCSI IDs and disable termination

1. Set SCSI IDs to 0. Disable termination.
2. Check that the SCSI ID of the tape drive matches the table on the previous page.
3. Ensure that Parity Checking is enabled on the tape and disks.
4. Check that the tape drive is configured to enable termination for its SCSI channel.

   **Note:** You require a wide (68-pin) to narrow (50-pin) connector to connect a narrow tape drive to the wide SCSI bus.

## What's next?

Once you have set the SCSI IDs, configure the system for specific drive capacities.

# Configuring hard disk drives

## Introduction

Your requirements determine the capacity of a system. Drives C-0 and C-1 might not exist in a standard RAID configuration. The procedures for configuring each drive capacity are listed below.

**Note:** The following serves as an example only. Other combinations are possible depending on your application.

## Hard drive location

The following table indicates the relative physical location of hard drives and their associated capacity:

| Drive bay 1 | Drive bay 2 | Drive bay 3 | Drive bay 4 | Drive bay 5 | Drive bay 6 |
|---|---|---|---|---|---|
| 9 Gbyte | 9 Gbyte | 9 Gbyte | 9 Gbyte | 9 Gbyte | 9 Gbyte |
| A-0 | B-0 | C-0 | A-1 | B-1 | C-1 |

**Note:** Drive bays can be either 4 Gbyte or 9 Gbyte.

## To configure hard disk drives

1 Use the "Hard drive location" table above to determine the appropriate drive bay for installation.

2 Configure the hard drive to have no termination.

**Result:** The SCSI backplane handles proper termination of the SCSI bus.

**Note:** In a non-RAID configuration, only drives A-0 and B-0 are installed for a 13 Gbyte configuration. C-0 is installed only if the intended configuration is 22 Gbyte.

In a RAID configuration, drives A-0, A-1, B-0, and B-1 are installed for a 13 Gbyte configuration. C-0 and C-1 are installed only if the intended configuration is 22 Gbyte.

## What's next?

Once you have configured the capacity of your drives, configure the drives as part of a RAID or non-RAID system.

# Rebuilding a hard disk in RAID

## Introduction

In RAID level 1, two equal-capacity disks mirror one another. Both drives run simultaneously with one disk serving as the backup copy of the other disk. If one drive fails, the other continues to run. When the failed drive is physically replaced with a new one, the data on the operating drive of the system pack must be copied onto the new drive to rebuild it. RAID automatically performs this rebuild process when the replacement drive is accessed.

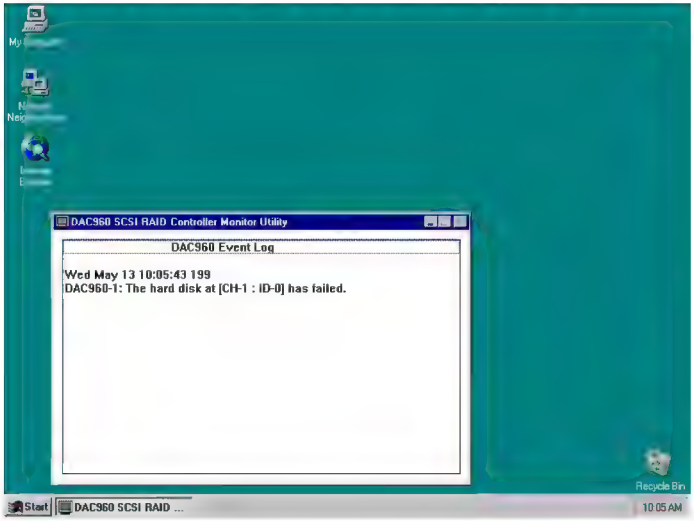
If you would like to start the initiation process sooner, or monitor the rebuilding process, use the the DAC Administration software that is installed on the system.

## Before you begin

Perform this procedure in response to the system message that a hard disk has failed. The message displays information about drive location. Perform this procedure while the system is powered on.

## To rebuild a hard disk in a RAID system

1 Observe the warning message given by the DAC Monitor software, which indicates a hard drive failure.


DAC960 SCSI RAID Controller Monitor Utility
DAC960 Event Log
Wed May 13 10:05:43 199
DAC960-1: The hard disk at [CH-1 : ID-0] has failed.
Recycle Bin
Start
DAC960 SCSI RAID ...
10:05 AM

2 Record the SCSI channel SCSI ID of the drive that failed from the information in the DAC Monitor window.

3 Identify which drive drive failed using this information and referring to the tables contained on pages 180 and 182.

4 Shutdown Windows NT and power down the server.

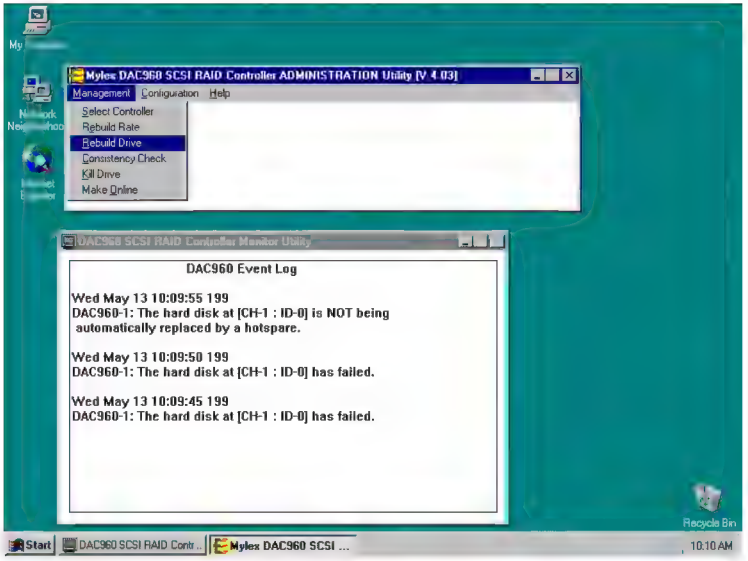
5 Remove the failed hard disk.

6 Replace the failed hard disk with a new hard disk.

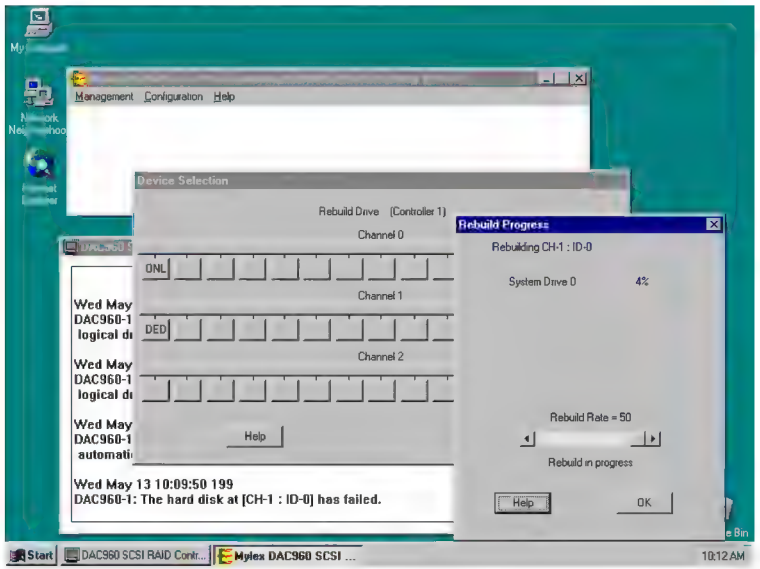
7 Power up the server and log on to Windows NT.

8 Click the DAC Administration icon.

**9** Choose Rebuild Drive from the Management menu.

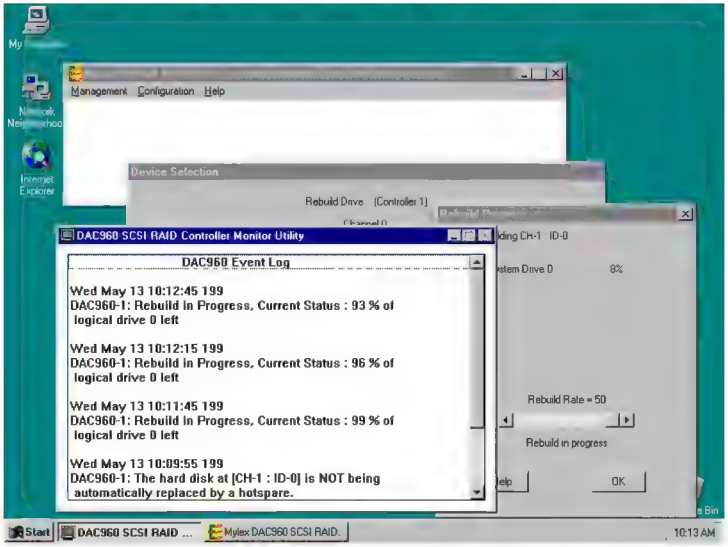

Mylex DAC960 SCSI RAID Controller ADMINISTRATION Utility [V 4.03]
Management Configuration Help
Select Controller
Rebuild Rate
Rebuild Drive
Consistency Check
Kill Drive
Make Online
DAC960 SCSI RAID Controller Monitor Utility
DAC960 Event Log
Wed May 13 10:09:55 199
DAC960-1: The hard disk at [CH-1 : ID-0] is NOT being automatically replaced by a hotspare.
Wed May 13 10:09:50 199
DAC960-1: The hard disk at [CH-1 : ID-0] has failed.
Wed May 13 10:09:45 199
DAC960-1: The hard disk at [CH-1 : ID-0] has failed.
Recycle Bin
Start
DAC960 SCSI RAID Contr...
Mylex DAC960 SCSI ...
10:10 AM

**10** Click the drive marked DED.



**11** When the rebuild completes, click OK.

**Note:** This procedure takes from five minutes to one hour, depending on the size of the drive.


Management Configuration Help
Device Selection
Rebuild Drive (Controller 1)
DAC960 SCSI RAID Controller Monitor Utility
DAC960 Event Log
Wed May 13 10:12:45 199
DAC960-1: Rebuild in Progress, Current Status : 93 % of logical drive 0 left
Wed May 13 10:12:15 199
DAC960-1: Rebuild in Progress, Current Status : 96 % of logical drive 0 left
Wed May 13 10:11:45 199
DAC960-1: Rebuild in Progress, Current Status : 99 % of logical drive 0 left
Wed May 13 10:09:55 199
DAC960-1: The hard disk at [CH-1 : ID-0] is NOT being automatically replaced by a hotspare.
Rebuild Rate = 50
Rebuild in progress
OK
Start
DAC960 SCSI RAID ...
Mylex DAC960 SCSI RAID.
10:13 AM

**12** After the procedure is complete, close the application.

# Maintaining RAID hard drives

## Introduction

RAID hard drives must be checked for errors on a weekly basis. Errors can be reviewed with the help of the DAC Admin Windows NT software utility that is installed on the server.

## To review errors detected on a RAID hard disk

1. Click the Start Menu.
2. Click Run.
3. Type dacadm.exe.
4. Click OK.

   **Result:** This starts the DACAdmin software utility.
5. Click the Configuration menu.
6. Choose Drive Information on the Configuration menu.

   **Result:** A list of all hard disks connected to the RAID controller appears.

   **Note:** Hard disks marked ONL are online and part of a RAID System pack.
7. Click on a drive to see a summary of errors.
   a. If there are ten or more soft errors per day, replace the drive.
   b. Hard errors should not occur during normal operation. Contact your Nortel Networks customer support representative if errors are accumulating.
   c. Miscellaneous Errors are typically due to cabling or termination problems on the SCSI bus. Verify jumper settings on all SCSI devices and ensure that cabling is secure.
   d. When the total number of errors reaches 127, the controller marks the drive DED. DED means offline. The drive must be replaced.
8. Repeat step 7 on all hard disk drives listed.
9. Close the configuration menu.
10. Exit from the DAC Admin software utility.

# Section C: Device settings

## In this section

Overview 190
Pentium II or III slot assignments 191
IRQ mapping table 192

# Overview

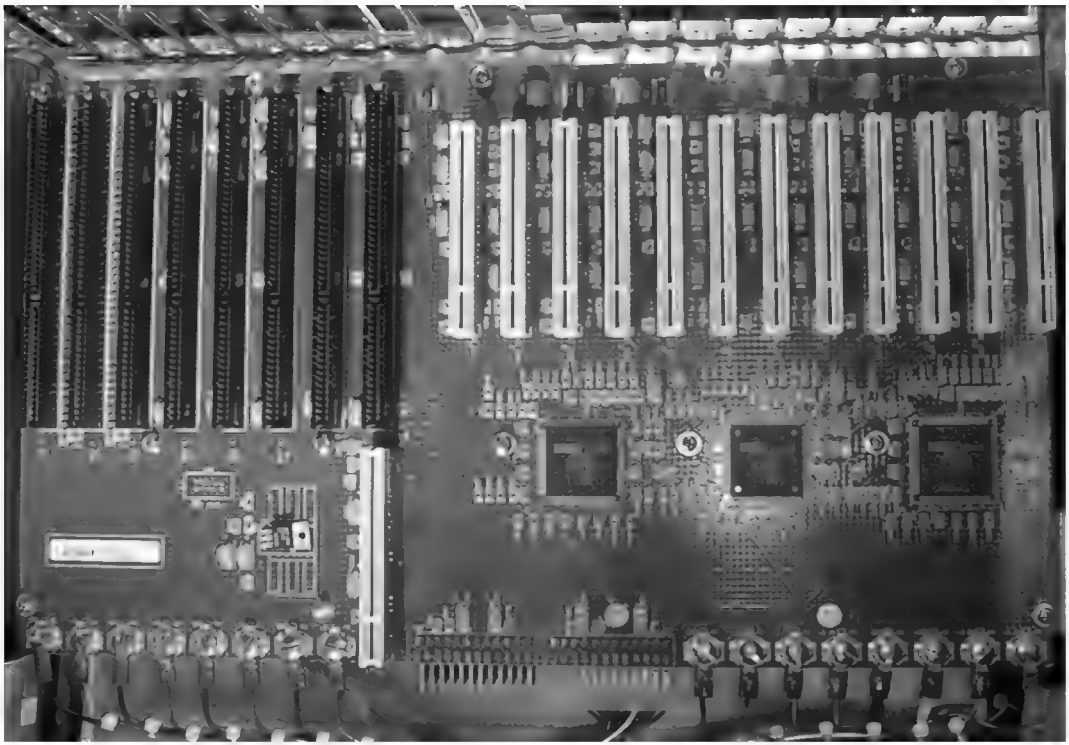
## Introduction

This section describes device settings for the 1001rp server.

Procedures covered include the following:

- slot assignments for the 1001rp server configurations
- IRQ mapping for the 1001rp server

## 1001rp backplane showing ISA/SBC/PCI slots



# Pentium II or III slot assignments

| Slot | Device |
|---|---|
| ISA Slot 1 | CLAN Network Card (if ISA) |
| ISA Slot 2 | Available for application |
| ISA Slot 3 | Available for application |
| ISA Slot 4 | Available for application |
| ISA Slot 5 | Available for application |
| ISA Slot 6 | Available for application |
| ISA Slot 7 | Available for application |
| SBC Slot | Pentium II or Pentium III Single Board Computer |
| PCI Slot 1 | Reserved for COM1 and COM2 I/O Bracket |
| PCI Slot 2 | ELAN Network Card |
| PCI Slot 3 | CLAN Network Card (if PCI) |
| PCI Slot 4 | Available for application |
| PCI Slot 5 | Available for application |
| PCI Slot 6 | Available for application |
| PCI Slot 7 | Available for application |
| PCI Slot 8 | Available for application |
| PCI Slot 9 | Available for application |
| PCI Slot 10 | Available for application |
| PCI Slot 11 | VGA Card (if PCI) |
| PCI Slot 12 | PCI RAID Controller |

# IRQ mapping table

## Introduction

The IRQ table for the 1001rp Server applies to both Single Board Computer configurations. In addition, note that IRQs 9, 10, 11, and 15 are assigned to system PCI slots rather than to specific devices.

| IRQ | Slot/Device |
|---|---|
| 0 | Timer |
| 1 | Keyboard |
| 2 | System / Unused |
| 3 | Serial Port 2 (COM2) |
| 4 | Serial Port 1 (COM1) |
| 5 | CLAN Network Interface (if ISA) otherwise available |
| 6 | Floppy Controller |
| 7 | Parallel Port (LPT1) |
| 8 | Real Time Clock |
| 9 | Assigned to PCI Slots 1, 7, and 12 |
| 10 | Assigned to PCI Slots 2, 5, and 11 |
| 11 | Assigned to PCI Slots 3, 6, and 9 |
| 12 | PS/2 Mouse |
| 13 | Math Coprocessor |
| 14 | Primary EIDE Controller |
| 15 | Assigned to PCI Slots 4, 8, and 10 |

# Section D: Video card

## In this section

Overview 194
Troubleshooting the video card 195
Replacing the video card 196

# Overview

## Introduction

This section describes procedures for handling and replacing video cards on the 1001rp server.

## Included procedures

Procedures covered include the following:

- troubleshooting the video card
- identifying the video card
- determining slot assignment
- replacing the video card

# Troubleshooting the video card

## Video card function

The video card takes information from the computer and displays it on the installed monitor.

## Indicators for card replacement

If the monitor appears to be functioning but no display is visible, look for the following indicators of video card malfunction. If the server is consistent with these indicators, replace the video card:

- Brightness and contrast are set at normal level.
- The server is powered on and one long beep is followed by two short beeps.
- The floppy drive light goes on when the server is powered, but no display is visible on the monitor.
- The floppy drive light comes on when the user types dir a: and presses Enter, but no display is visible on the monitor.

# Replacing the video card

## Introduction

If you determine that a problem exists with your video card, replace the card. You need to identify the type of card before you can decide where to install it.

## Requirements

To replace the video card, you require the following:

- one Phillips screwdriver
- one antistatic wrist strap
- the replacement video card

## Identify the card

Identify a video card from other types of cards by its connector. To identify an installed video card, look at the card to which the installed monitor connects. If no monitor is connected, look for the card to which a monitor normally connects.

## To replace the video card

1. Review the manufacturer's documentation for the replacement video card.
2. Power down the server and disconnect all power cords.
3. Refer to the table on page 191 to determine proper slot assignment.
4. Remove the chassis cover to expose the installed cards.
5. Set aside any cables covering the video card.

   **Note:** The video card has no internal cable connectors itself.
6. Free the card from the faceplate by loosening the screw.
7. Lift the card out of the slot and set it aside.
8. Unpack the replacement card and align it with the proper slot.

9 Apply downward pressure until the card is evenly and securely seated in the slot.

10 Secure the card by tightening the screw located at the top of the faceplate.

11 Replace the chassis cover.

## What's next?

Perform system diagnostics procedures after you install or replace any server component.

# Section E: Optional cards

## In this section

Overview 200
Replacing ELAN cards 201
Replacing Ethernet CLAN cards 206
Replacing Token Ring CLAN cards 209

# Overview

## Introduction

This section describes the network cards approved for use in the 1001rp server.

Procedures covered include the following:

- slot assignments for optional cards
- installing and configuring network cards

## Minimum requirements

Minimum system requirements for all servers include the installation of a network card. Install optional network cards according to server configuration.

Slot assignments described in this section show the proper location for required and optional network cards.

## Pentium II or III slot assignments

Refer to "Pentium II or III slot assignments" on page 191.

# Replacing ELAN cards

## Introduction

The ELAN network card is a minimum system requirement for the 1001rp server. Although the card must always be an Ethernet card installed in a PCI slot, it can be either Intel or 3Com.

## To replace an ELAN network card

1. Check the slot assignment table on page 191 to determine proper slot assignment.
2. Check that the BIOS is configured to assign the correct IRQ to the correct slots.
3. Remove the chassis cover to expose the installed cards.
4. Disconnect external network cables.
5. Check the installed card to ensure that it is the ELAN network card.
6. Set aside any cables covering the card.

   **Note:** The network card has no internal cable connectors.
7. Free the card from the faceplate by loosening the screw.
8. Lift the card out of the slot and set it aside.
9. Unpack the replacement card and insert it into the proper slot.
10. Align the card with the faceplate and secure it by tightening the screw.
11. Replace the chassis cover.
12. Connect the ELAN network cable.

## What's next?

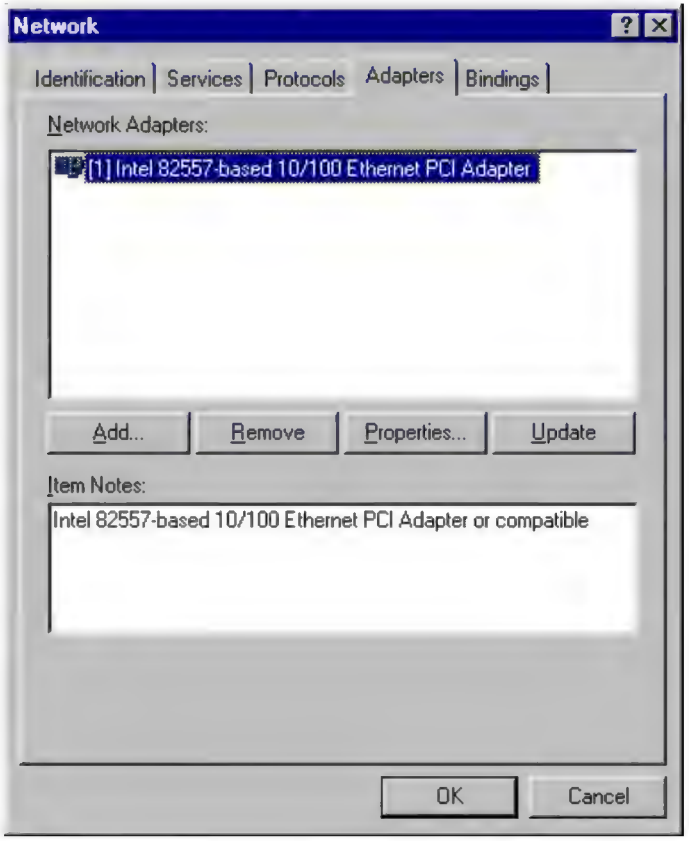
- Add the appropriate network card driver if the new installed card is a different make/model from the failed card.
- You must remove the old ELAN card driver if the new installed card is a different make/model from the failed card.
- Run diagnostic software (typically installed with the driver).

## To install an ELAN network card driver

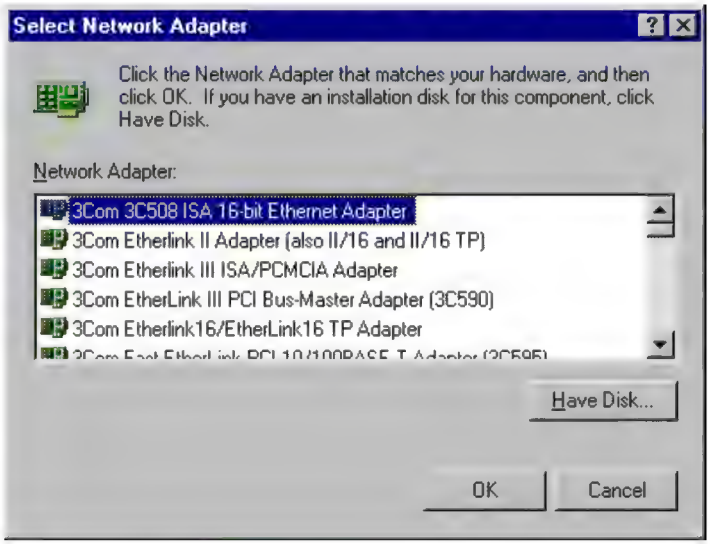
1 Restart and log on to the server as Administrator.

2 Open the Network Control Panel and select the Adapters tab.

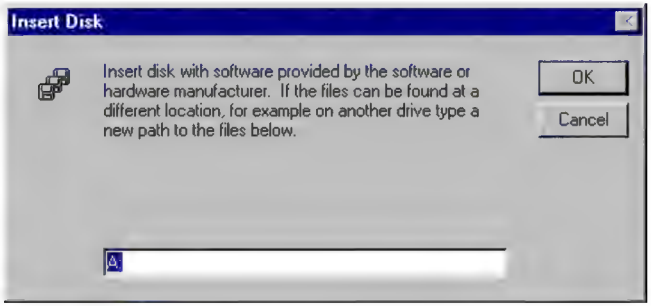
3 Click Add... to add the adapter.



4 Click Have Disk... to load the device driver.


Select Network Adapter
Click the Network Adapter that matches your hardware, and then click OK. If you have an installation disk for this component, click Have Disk.
Network Adapter:
3Com 3C508 ISA 16-bit Ethernet Adapter
3Com Etherlink II Adapter (also II/16 and II/16 TP)
3Com Etherlink III ISA/PCMCIA Adapter
3Com EtherLink III PCI Bus-Master Adapter (3C590)
3Com Etherlink16/EtherLink16 TP Adapter
Have Disk...
OK
Cancel

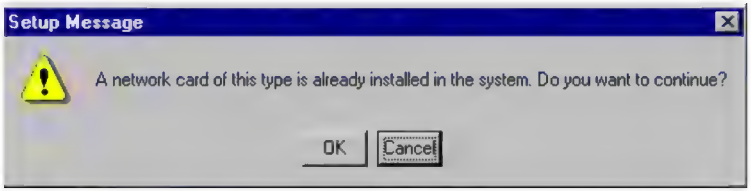
5 Insert the driver disk for the ELAN network card in the floppy drive and press Enter.


Insert Disk
Insert disk with software provided by the software or hardware manufacturer. If the files can be found at a different location, for example on another drive type a new path to the files below.
OK
Cancel
A:

6 If the driver disk contains drivers for more than one network card, the system prompts you to select the driver you want to install. Choose the driver that matches the installed ELAN card and click OK.

7 Click OK when the following screen appears:

**Note:** You only see this if ELAN and CLAN are the same.




**Result:** Some files are copied to the system and the new network card is listed in the network dialog box.

**Note:** Screen shots are not included for specific cards as they might be different depending on your configuration. If you need help installing a driver, call your Nortel Networks customer support representative.

8 Click Close to close the network control panel.

9 The TCP/IP properties panel appears.

10 Select the new driver installed in the Adapters box.

11 Enter the customer-supplied IP address.

12 Click OK.

**Result:** You are prompted to restart the computer.

13 Click Yes.

# Replacing Ethernet CLAN cards

## To replace the 3Com PCI Ethernet card

1. Review the slot assignments on page 191 to install the PCI CLAN network card in the appropriate slot.
2. Check that the BIOS is configured to assign the correct IRQ to the correct slots.
3. Power down the server.
4. Unplug the AC power cord.
5. Remove the chassis cover.
6. Locate the CLAN Ethernet card to be removed, and unplug its network cabling.
7. Set aside any cables covering the card.
8. Remove the screw that fastens the card in the chassis.
9. Gently pull the card out (use a slight rocking motion).
10. Remove the new Ethernet card from its protective packaging.

    **Note:** Place the old Ethernet card into the protective packaging.
11. Line up the new Ethernet card with the slot (PCI or ISA, as appropriate).

    **Note:** Make sure the end-plate tab is lined up with the opening in the chassis.
12. Press the card into the slot.

**CAUTION**

**Risk of equipment damage**

Ensure that the card is completely seated or the card will short-circuit.

13. Secure the card to the server chassis with the fastening screw.
14. Replace the chassis covers.
15. Plug in the AC power cord.

16 Power up the server.

## To install a 3Com PCI Ethernet network card driver

1 Start with Windows NT and log on to the server as Administrator.

2 Open the Network Control Panel, select the Adapters tab, and Click Add... to add the adapter.

3 Click Have Disk... to load the device driver.

4 Insert the 3Com device driver disk for the CLAN card and press Enter.

5 Select 3Com Fast Ethernet 3C900 card and click OK.

6 Click Close to close the network control panel and configure the network card.

7 Enter the TCP/IP information for the card.

**Note:** The customer must provide this information.

8 Click OK to close the TCP/IP configuration screen.

9 Click Yes to restart the computer.

## To replace an Intel PCI Ethernet card

1 Review the slot assignments on page 191 to install the PCI CLAN network card in the appropriate slot.

2 Check that the BIOS is configured to assign the correct IRQ to the correct slots.

3 Power down the server.

4 Unplug the AC power cord.

5 Remove the chassis cover.

6 Locate the CLAN Ethernet card to be removed, and unplug its network cabling.

7 Set aside any cables covering the card.

8 Remove the screw that fastens the card in the chassis.

9 Gently pull the card out (use a slight rocking motion).

10 Remove the new Ethernet card from its protective packaging.

**Note:** Place the old Ethernet card into the protective packaging.

11 Line up the new Ethernet card with the slot (PCI or ISA, as appropriate).

**Note:** Make sure the end-plate tab is lined up with the opening in the chassis.

12 Press the card into the slot.

**CAUTION**

**Risk of equipment damage**

Ensure that the card is completely seated or the card will short-circuit.

13 Secure the card to the server chassis with the fastening screw.

14 Replace the chassis covers.

15 Plug in the AC power cord.

16 Power up the server.

## To install an Intel PCI Ethernet network card driver

1 Start with Windows NT and log on to the server as Administrator.

2 Open the Network Control panel, select the Adapters tab, and click Add... to add the adapter.

3 Click Have Disk... to load the device driver.

4 Insert the Intel device driver disk for the CLAN card and press Enter.

5 Select Intel EtherExpress PRO/100B PCI Ethernet Adapter, and click OK.

6 Click Close to close the network control panel and configure the network card.

7 Enter the TCP/IP information for the card.

**Note:** The customer must provide this information.

8 Click OK to close the TCP/IP configuration screen. Click Yes to restart the computer.

# Replacing Token Ring CLAN cards

## To replace the Racore PCI Token Ring card

1. Review slot assignments on page 191 and install the PCI CLAN network card in the appropriate slot.
2. Power down the server.
3. Unplug the AC power cord.
4. Remove the chassis covers.
5. To make access to the internal components easier, turn the server over on its side.
6. Locate the PCI Token Ring card to be removed, and unplug its network cabling.
7. Remove the screw that fastens the card in the chassis.
8. Gently pull the card out (use a slight rocking motion).
9. Remove the new PCI Token Ring card from its protective packaging.

   **Note:** Place the old PCI Token Ring card into the protective packaging.
10. Line up the new PCI Token Ring card with the PCI slot.

    **Note:** Make sure the end-plate tab is lined up with the opening in the chassis.
11. Press the card into the slot.

**CAUTION**

**Risk of equipment damage**

Ensure that the card is completely seated or the card will short-circuit.

12. Secure the card to the server chassis with the fastening screw.
13. Stand the server up, and replace the chassis covers.
14. Plug in the AC power cord.
15. Power up the server.

## To install a Racore PCI Token Ring card driver

1. Start with Windows NT and log on to the server as Administrator.
2. Open the Network Control panel, and select the Adapters tab.
3. Click Add... to add the adapter, and click Have Disk... to load the device driver.
4. Insert the Racore device driver disk for the CLAN card, type **a:\windows.nt** as the path to the driver, and press Enter.
5. Select Racore Preferred Token Ring NDIS Driver, and click OK.
6. Type the following information in the appropriate fields:
   - I/O: **PCI**
   - IRQ: **5** (or **10** if PCI and MMX SBC; or **11** if PCI and PII SBC)
   - DMA: **Autodetect**
   - Memory Address: **Autodetect**
   - Network Address: (leave blank)
   - Speed: 16 Mbytes (leave the rest of field as is)
   - Bus Number:
     Select the appropriate bus number from the list below:
     PCI slot # 1 = Bus 1
     PCI slot # 2 = Bus 1
     PCI slot # 3 = Bus 1
     PCI slot # 4 = Bus 1
     PCI slot # 5 = Bus 2
     PCI slot # 6 = Bus 2
     PCI slot # 7 = Bus 2
     PCI slot # 8 = Bus 2
     PCI slot # 9 = Bus 3
     PCI slot # 10 = Bus 3
     PCI slot # 11 = Bus 3
     PCI slot # 12 = Bus 3
   - Bus Type: **PCI**

   **Note:** The last two fields appear in a separate dialog box.
7. Click Close to close the Network Control Panel and configure the network card.

8 Enter the TCP/IP information for the card.

**Note:** The customer must provide this information.

9 Click OK to close the TCP/IP configuration screen.

10 Click Yes to restart the computer.

## To replace the Madge ISA Token Ring card

1 Use the BIOS Configuration utility to check that IRQ5 is available.

**Note:** Go to the Advanced section of the BIOS and, under PCI Devices, ensure that IRQ5 is not assigned to a PCI IRQ Line.

2 Review slot assignments and install the ISA CLAN network card.

3 Power down the server.

4 Unplug the AC power cord.

5 Remove the chassis covers.

6 To make access to the internal components easier, turn the server over on its side.

7 Locate the PCI Token Ring card to be removed, and unplug its network cabling.

8 Remove the screw that fastens the card in the chassis.

9 Gently pull the card out (use a slight rocking motion).

10 Remove the new PCI Token Ring card from its protective packaging.

**Note:** Place the old PCI Token Ring card into the protective packaging.

11 Line up the new PCI Token Ring card with the PCI slot.

**Note:** Make sure the end-plate tab is lined up with the opening in the chassis.

12 Press the card into the slot.

**CAUTION**

**Risk of equipment damage**

Ensure that the card is completely seated or the card will short-circuit.

13 Secure the card to the server chassis with the fastening screw.

14 Stand the server up, and replace the chassis covers.

15 Plug in the AC power cord.

16 Power up the server.

## To install a Madge ISA Token Ring card driver

1 Start the server from the Madge Install disk.

**Note:** If the disk supplied is not in a bootable format, refer to Standard Procedures.

2 Press any key once the title screen appears. Press F3 to configure software configurable ringnodes.

3 Select the SMART 16/4 AT PLUS RINGNODE.

Verify the following information and press Enter to configure the information:

- Transfers: 16 bit Bus Master
- I/O Port: 0A20
- Ring Speed: 16 Mbytes
- IRQ: 5
- SmartROM: Disabled

4 Press F5 to confirm that the hardware profile matches the configuration.

**Note:** If the configuration does not match, check the DIP switches.

5 Verify the following information and press F8 to configure:

- DMA: 5
- I/O Width: 16 bit
- Bus Timing: Normal
- Bus Mode: Asynch

6 Press F4 to complete the configuration.

7 Restart and log on to the server as Administrator.

8 Open the Network Control Panel and select the Adapters tab. Click Add... to add the adapter.

9 Click Have Disk... to load the device driver.

10 Insert the Madge Device Driver disk for the CLAN card.

   a. Type **a:\winnt.35** as the path to the driver.

   b. Press Enter.

   c. Select SMART 16/4 AT PLUS RINGNODE (BM).

   d. Click OK.

11 Type the following information in the appropriate fields:

   - I/O Location: **0x0a20**
   - IRQ: **5**
   - DMA: **5**
   - Number of Processors: **Multiple**
   - Max Frame Size: **4096**
   - LAA: (leave blank)
   - Rx/Tx Buffers: **Rx=04, Tx=04**
   - Traffic Statistics Gathering: **Enabled**
   - Ring Speed: Set at Adapter (leave the rest of the field as is)
   - Bus Type: **ISA**
   - Bus Number: **0**

   **Note:** The last two fields appear in a separate dialog box.

12 Click Close to close the Network Control Panel and configure the network card.

13 Enter the TCP/IP information for the card.

   **Note:** The customer must provide this information.

14 Click OK to close the TCP/IP configuration screen.

15 Click Yes to restart the computer.

# Section F: The Pentium II SBC card

## In this section

The Pentium II SBC card 216
Replacing the Pentium II SBC card 218
Upgrading the BIOS 220
Dual Inline Memory Modules 232

# The Pentium II SBC card

## Introduction

This section describes the Pentium II or Pentium III Single Board Computer (SBC) cards. It covers procedures for replacing and configuring the SBC card.

## Procedures included

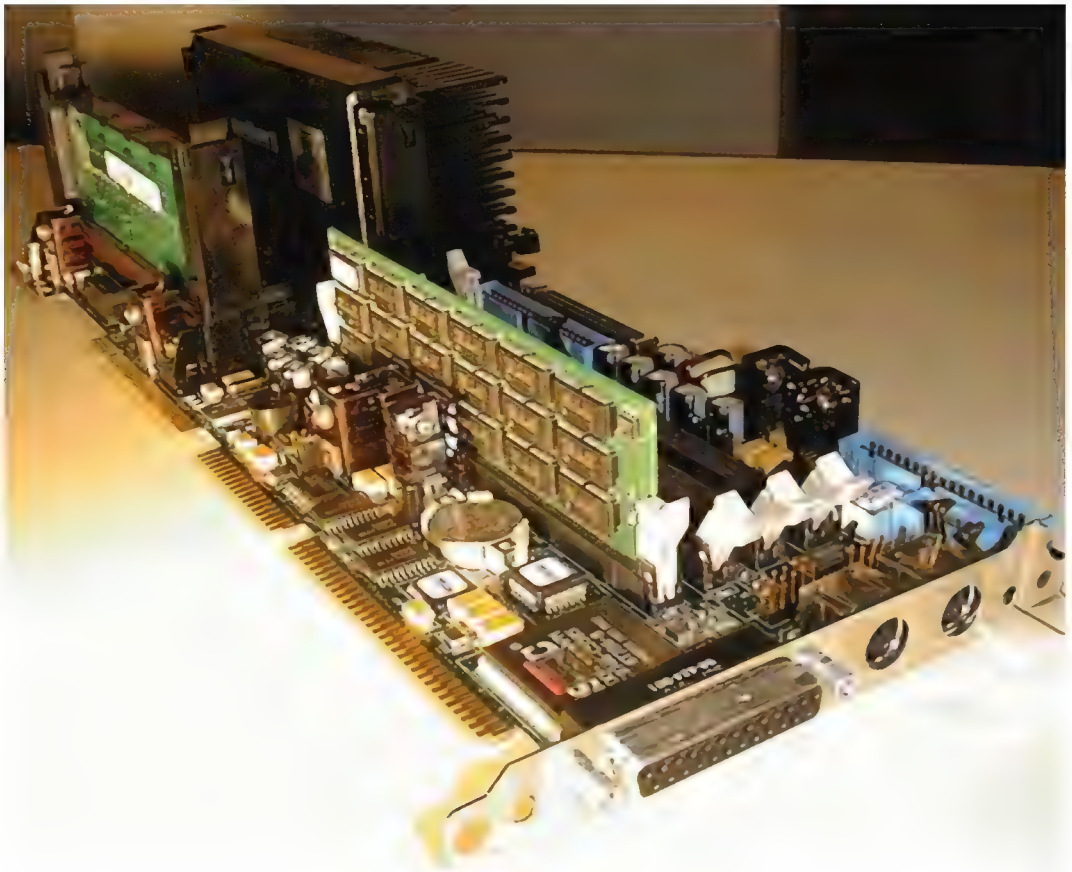
Procedures covered include the following:

- replacing the SBC card
- upgrading and configuring the BIOS
- adding memory DIMMs to the SBC

## Intended audience

This section is written primarily for field service technicians. It is intended to act as a guide for installing, repairing, replacing, and upgrading hardware and software components. This section assumes that the reader has basic computing skills, is familiar with necessary safety procedures, and has the hardware documentation provided by the manufacturer available as a reference. This information applies to the 1001rp server only.

## The Pentium II SBC



# Replacing the Pentium II SBC card

## Introduction

You should replace the SBC card when it fails. Use system diagnostic tools and refer to error codes to determine whether the SBC card should be replaced.

The SBC is always installed in the SBC slot located between the ISA expansion slots and the PCI slots on the backplane. The board features headers for peripheral connections, jumper blocks, and DIP switches. It also features four DIMM sockets to support up to 512 Mbytes of Fast Page Mode memory on the Pentium II SBC.

## Requirements

Before replacing the SBC card, gather the following tools:

- one Phillips-head screwdriver
- one antistatic wrist strap
- the replacement SBC card
- cable labels

## To replace the SBC card

1. Power down the server.
2. Disconnect the power cord.
3. Remove the top cover.
4. Free and label all connectors from the SBC card.
5. Loosen and remove the screw located at the top of the I/O bracket.
6. Remove the I/O bracket.
7. Loosen and remove the screw located at the top of the card's faceplate.
8. Loosen the SBC and pull it up from the backplane.
9. Remove the new card from its protective wrapping.

10 Align the card with its slot on the backplane and press it into place.

**Result:** The board seats properly in both the ISA-style and PCI-style connectors.

11 Fasten the card down with the screw provided.

12 Install the new I/O bracket.

13 Fasten the I/O bracket using the screw provided.

14 Remove the labels attached to all connectors and reconnect them to the card.

15 Replace the top cover.

# Upgrading the BIOS

## Introduction

BIOS is the Basic Input/Output System of the computer. It is Flash ROM-based code. The system is equipped with Flash BIOS, which enables you to upgrade by running a single program that writes updated code to the Flash ROM chips.

## When to configure the BIOS

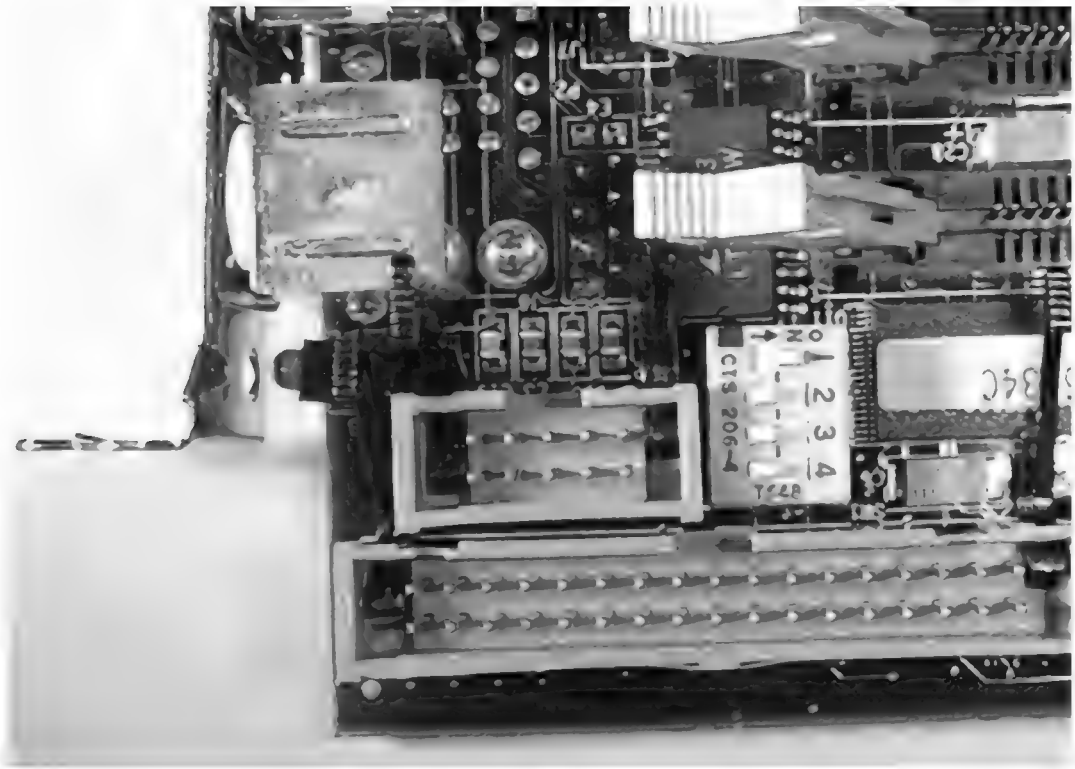
BIOS configuration is necessary for first-time setup. Reconfigure the BIOS after a BIOS or CMOS failure and recovery.

## Requirements

- You need a bootable upgrade disk. For the Pentium II SBC, the Texas Micro BIOS release number must be 4.06.1.5c.

  Contact your Nortel Networks customer support representative organization to request a BIOS upgrade disk.
- You must perform both of the following procedures to upgrade the BIOS:
  - upgrading the BIOS
  - configuring the SBC

## DIP switch block on the Pentium II SBC




## To upgrade the BIOS

1. Insert the bootable BIOS upgrade disk into drive A and power on the server.

   **Note:** You can obtain a BIOS upgrade disk from your Nortel Networks customer representative.

2. Allow the flash process to complete.
3. Power down the system.
4. Remove the top cover.
5. Set DIP switch 3 to the ON position.

6 Power on the server.

**Result:** A message appears on the boot screen that the system is loading BIOS defaults.

7 Power off the server after seeing the above message.

8 Return DIP switch 3 to the OFF position.

9 Replace the top cover.

10 Restart the system.

11 Configure the BIOS as described in the following procedure.

## To configure the Pentium II SBC BIOS

1 Power on the system and press F2 to enter the CMOS Setup.

**Note:** For the following steps, use the arrow keys to navigate menus, and press Enter to make a selection.

**Result:** The Setup Utility starts. The screen has two areas:

- Options: The Options menu is on the left side of the screen, and is composed of Basic options, Advanced options, and PCI options.
- Summary Information: The current settings appear on the right side of the screen.

2 Select the items described in the tables that follow.

## Crisis recovery

There are special cases when the BIOS data is corrupted or an invalid user configuration has been entered, an incorrect BIOS file has been flashed. In some cases, the SBC does not start at all or it displays nothing on the screen.

### To recover the BIOS

1 Use the Nortel Network's NTRH8042 disk to create the Crisis recovery disk.

**a.** In DOS mode, copy the contents of the NTRH8042 disk on a temporary directory.

**b.** Label a new disk Crisis Recovery.

**c.** Insert the Crisis Recovery disk into drive A.

**d.** At the DOS prompt, type crisdisk.

**e.** Press Enter.

**f.** After the disk is done, at the DOS prompt, type **makeboot**.

**g.** Press Enter. Power off the server.

2 Identify Switch Block (SW1) on the SBC. The Switch Block contains four M access, CMOS RAM, and configuration ports. Set dip switch number 2 to the closed/on position.

**Note:** The default position set on the switch is open/off.

3 Insert the Crisis Disk into the floppy drive.

4 Power on the server.

**Result:** You hear a series of beeps.

**Note:** During this process, the only devices that work are the floppy controller, floppy drive, and speaker. There is no display.

5 When you do not hear any beeps (approximately 15 seconds), remove the disk and power off the server.

6 Return switch number 2 back to the default position of open/off.

7 Power on the server.

**Result:** The SBC should restart normally and prompt you to enter into setup.

## Pentium II BIOS basic options

**Note:** You must first load the defaults by pressing F9.

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| Time and Date | Set time and date | N/A | Current Date/Time |
| Floppy Disks | Floppy Controller | Enabled | Enabled |
| | Select drive A Type | 3.5" 1.44 Mbytes | 3.5" 1.44 Mbytes |
| | Select drive B Type | Not Installed | Not Installed |
| IDE Adapter 0 | Master | CD-ROM | CD-ROM |

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| | Slave | None | None |
| IDE Adapter 1 | Master | None | None |
| | Slave | None | None |
| Fixed Disks | IDE Controller Setup | Primary (1F0-1F7h) | Primary (1F0-1F7h) |
| | Auto Detect IDE Drives | Enabled | Enabled |
| | Large Disk DOS Compatible | Enabled | Enabled |
| | Set Hard Disk 1/2 / 3/4 Type | N/A | N/A |
| Cache Memory | Memory Cache | Enabled | Enabled |
| | Cache System BIOS area | Write protect | Write protect |
| | Cache Video BIOS area | Write protect | Write protect |
| | Cache Base 0–512 kbytes | Write back | Write back |
| | Cache Base 12 kbytes–640 kbytes | Write back | Write back |
| | Cache Extended Memory area | Write back | Write back |
| | Cache A000–AFFF | Disabled | Disabled |
| | Cache B000–BFFF | Disabled | Disabled |
| | Cache C800–CBFF | Disabled | Disabled |
| | Cache CC00–CFFF | Disabled | Disabled |

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| | Cache D000–D3FF | Disabled | Disabled |
| | Cache D400–D7FF | Disabled | Disabled |
| Boot Options | Summary screen | Enabled | Enabled |
| | Floppy check | Enabled | Enabled |
| | Quiet boot | Disabled | Disabled |
| | Post errors | Disabled | Disabled |
| Keyboard features | Numlock | Auto | Auto |
| | Key click | Disabled | Disabled |
| | Keyboard auto repeat rate | 30/sec | 30/sec |
| | Keyboard auto repeat delay | 1/2 sec | 1/2 sec |
| System Memory | Verify only | | |
| Extended Memory | Verify only | | |

## Pentium II BIOS advanced options

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| Integrated Peripherals | Serial Port A | Enabled | Enabled |
| | Serial Port A: Base I/O Address | 3F8 | 3F8 |
| | Serial Port A: Interrupt | IRQ 4 | IRQ 4 |
| | Serial Port B | Enabled | Enabled |
| | Serial Port B: Mode | Normal | Normal |
| | Serial Port B: Base I/O Address | 2F8 | 2F8 |
| | Serial Port B: Interrupt | IRQ 3 | IRQ 3 |
| | Parallel Port | Enabled | Enabled |
| | Parallel Port: Mode | Bidirectional | Bidirectional |
| | Parallel Port: Base I/O Address | 378 | 378 |
| | Parallel Port: Interrupt | IRQ 7 | IRQ 7 |
| | Floppy Disk Controller | Enabled | Enabled |
| | Floppy Disk Controller: Base I/O Address | Primary | Primary |
| | Local Bus IDE Adapter | Enabled | Enabled |

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| | Adaptec Ultra SCSI Adapter | Disabled | Enabled for non-RAID<br>Disabled for RAID |
| | SCSI Adapter Frequency<br>**Note**: This is only an option if the Adaptec Ultra SCSI Adapter is enabled. | 40 MHz | 40 MHz |
| Advanced Chipset Control | DRAM Speed | nothing displayed | Do not change. |
| | ECC/Parity Config | ECC Gen & Correct | Parity Gen & Correct |
| | Enable Memory Gap | Disabled | Disabled |
| | Release E000 | Disabled | Disabled |
| | DMA Aliasing | Enabled | Enabled |
| | 8-bit I/O Recovery | 4.5 | 4.5 |
| | 16-bit I/O Recovery | 4.5 | 4.5 |
| | ISA Bus Speed | PCI Clock / 4 (8.33 MHz) | PCI Clock / 4 (8.33 MHz) |
| | Watchdog Timer Status | Disabled | Disabled |
| | Watchdog Timer Delay | 150 ms | 150 ms |

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| PCI configuration | PCI IRQ Line 1 | IRQ 9 | IRQ 9 |
| | PCI IRQ Line 2 | IRQ 10 | IRQ 10 |
| | PCI IRQ Line 3 | IRQ 11 | IRQ 11 |
| | PCI IRQ Line 4 | IRQ 15 | IRQ 15 |
| | ISA Graphics Device Installed | No | Yes |
| | PCI/PNP ISA UMB Region Exclusion C800 - DFFF | Available | Available |
| | PCI/PNP ISA IRQ Resource Exclusion: IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10, IRQ11, IRQ12, IRQ14, IRQ15 | Available | Reserve IRQ5 if installing ISA CLAN card. |
| PS/2 Mouse | | Enabled | Enabled |
| Onboard Speaker | | Enabled | Enabled |

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| Use Multiprocessor Spec | | 1.1 | 1.4 |
| CPU BIOS Update | | Enabled | Enabled |
| Plug & Play OS | | No | No |
| Secured Setup Configuration | | Yes | Yes |
| Large Disk Access Mode | | DOS | DOS |

## Pentium II BIOS security options

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| Supervisor Password is | | Clear | Clear |
| User Password is | | Clear | Clear |
| Set Supervisor Password | | Clear | Enter |
| Set User Password | | Clear | Enter |

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| Password on Boot | | Disabled | Disabled |
| Fixed Disk Boot Sector | | Normal | Normal |
| Disk Access | | Supervisor | Supervisor |
| Virus Check Reminder | | Disabled | Disabled |
| System Backup Reminder | | Disabled | Disabled |

## Pentium II BIOS power options

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| Power Savings | | Disabled | Disabled |
| Standby Timeout | | Off | Off |
| Auto Suspend Timeout | | Off | Off |
| Hard Disk Timeout | | Disabled | Disabled |
| Video Timeout | | Disabled | Disabled |
| Resume on Modem Ring | | Off | Off |
| Resume on Time | | Off | Off |

## Pentium II BIOS boot options

| Default settings | CallPilot setting |
|---|---|
| Disk Drive | Disk Drive |
| Hard Drive | ATAPI CD-ROM Drive |
| ATAPI CD-ROM Drive | Hard Drive |

| Hard drive | Option |
|---|---|
| Hard Drive | SCSI Hard Drive |

## Pentium II BIOS server options

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| Console Redirect Port | | Disabled | Disabled |
| Console Redirect Baud Rate | | 9600 | 57600 |

## IRQ mapping table

Refer to "IRQ mapping table" on page 192.

# Dual Inline Memory Modules

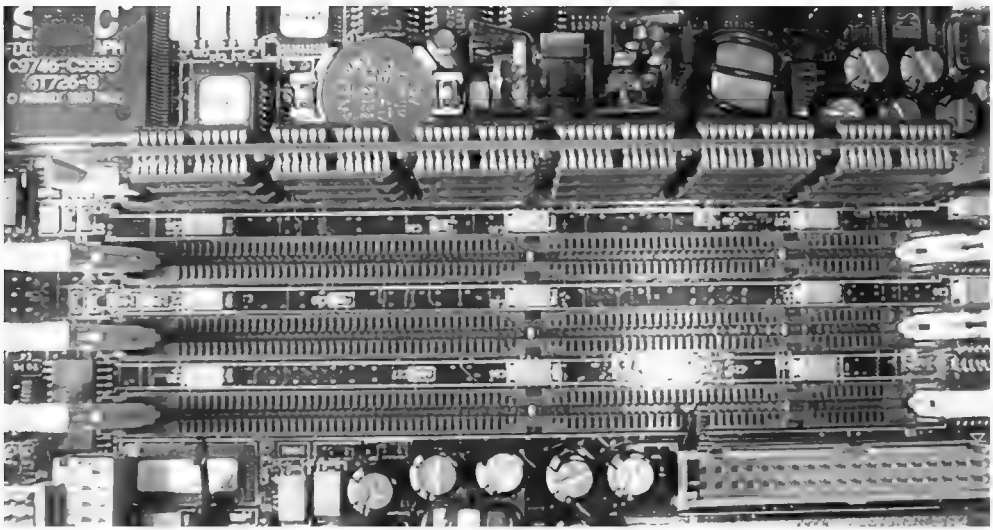
## Introduction

Dual Inline Memory Modules (DIMMs) are the memory modules located on the SBC. The gold-plated edge connectors on DIMMs are designed to plug into matching edge-connector slots. The design allows you to add or remove these modules repeatedly without tools or damage. Install DIMMs on the Pentium II SBC only.

## Capacity

Use 168-pin Fast Page Mode (FPM) parity DRAM utilizing DIMM technology with 60ns access times. A module has a capacity of 32, 64, or 128 Mbytes. DIMMs require only one slot filled to compose a bank. There are four slots or banks on the SBC. Install DIMMs in any slot, combination, or order. It is recommended that bank 0 (DIMM 1) be filled to enable troubleshooting procedures. Install up to 512 Mbytes of memory.

## DIMM slots on a Pentium II SBC



## Requirements

To add DIMMs to the card, you require the following:

- an antistatic wrist strap
- DIMMs with gold-plated edge connectors

## To add DIMMs to the SBC card

1. Remove the SBC card from the server.

   **Note:** To remove old DIMMs, perform steps 2 and 3. To add new DIMMs, go to step 5.

2. Push the DIMM release tab outwards at both sides of the DIMM to be removed.
3. Hold the DIMM by its edges, being careful not to touch its components. Remove the DIMM by lifting it away from its slot. Store it in an antistatic package.
4. Remove other DIMMs as necessary.
5. Orient the DIMM so that the two notches in the bottom edge of the DIMM align with the keyed slot.
6. Insert the bottom edge of the DIMM into the slot and press down firmly on the DIMM until it seats correctly.

   **Note:** When the DIMM seats correctly, release tabs lock back to an upright position. If the DIMM does not seat correctly, remove it and reinstall. Do not force the locking tabs to close.

7. Repeat the above two steps to install each additional DIMM.
8. Replace the SBC card in the server.

# Section G: The Pentium III SBC card

## In this section

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Replacing the Pentium III SBC card 237
Upgrading the BIOS 239
Dual Inline Memory Modules 249

# The Pentium III SBC card

## Introduction

This section describes the Pentium III Single Board Computer (SBC) card. It covers procedures for replacing and configuring the SBC card.

## Procedures included

Procedures covered include the following:

- replacing the SBC card
- upgrading and configuring the BIOS
- adding memory DIMMs to the SBC

## Intended audience

This section is written primarily for field service technicians. It is intended to act as a guide for installing, repairing, replacing, and upgrading hardware and software components. This section assumes that the reader has basic computing skills, is familiar with necessary safety procedures, and has the hardware documentation provided by the manufacturer available as a reference. This information applies to the 1001rp server only.

# Replacing the Pentium III SBC card

## Introduction

You should replace the SBC card when it fails. Use system diagnostic tools and refer to error codes to determine whether the SBC card should be replaced.

The SBC is always installed in the SBC slot located between the ISA expansion slots and the PCI slots on the backplane. The board features headers for peripheral connections, jumper blocks, and DIP switches. It features two DIMM sockets to support up to 512 Mbytes (two 256 Mbytes modules SDRAM ECC) of Fast Page Mode memory on the Pentium III SBC.

## Requirements

Before replacing the SBC card, gather the following tools:

- one Phillips-head screwdriver
- one antistatic wrist strap
- the replacement SBC card
- cable labels

## To replace the SBC card

1. Power down the server.
2. Disconnect the power cord.
3. Remove the top cover.
4. Free and label all connectors from the SBC card.
5. Loosen and remove the screw located at the top of the I/O bracket.
6. Remove the I/O bracket.
7. Loosen and remove the screw located at the top of the card's faceplate.
8. Loosen the SBC and pull it up from the backplane.

   **Note:** You can now do the following:

   - Replace the SBC with a new card. To replace it, continue with step 9.

- Upgrade the SBC by adding DIMM(s) to the card. To upgrade it, refer to the procedure "To add DIMMs to the SBC card" on page 233.
- Set dip switch #3 to upgrade the BIOS.

**DANGER**

**Risk of explosion**

The SBC has a lithium battery installed. If you are discarding the SBC, dispose of used batteries according to the manufacturer's instructions.

9 Remove the new card from its protective wrapping.

10 Align the card with its slot on the backplane and press it into place.

**Result:** The board seats properly in both the ISA-style and PCI-style connectors.

11 Fasten the card down with the screw provided.

12 Install the new I/O bracket.

13 Fasten the I/O bracket using the screw provided.

14 Remove the labels attached to all connectors and reconnect them to the card.

15 Identify the Switch Block (SW1) location on the SBC. The Switch Block contains four DIP switches (1–4) that you configure affecting on-board ROM access, CMOS RAM, and configuration ports. Ensure dip switch number 4 is set to the closed/on position. This setting ensures that configuration ports are set to I/O address 370–373.

**Note:** The default switch setting is open/off.

16 Replace the top cover.

# Upgrading the BIOS

## Introduction

BIOS is the Basic Input/Output System of the computer. It is Flash ROM-based code. The system is equipped with Flash BIOS, which enables you to upgrade by running a single program that writes updated code to the Flash ROM chips.

## When to configure the BIOS

BIOS configuration is necessary for first-time setup. Reconfigure the BIOS after a BIOS or CMOS failure and recovery.

## Requirements

- You need a bootable upgrade disk. For the Pentium III SBC, the Texas Micro BIOS release number must be 4.06a.1.4a.

  Contact your Nortel Networks customer representative to request a BIOS upgrade disk.
- You must perform both of the following procedures to upgrade the BIOS:
  - upgrading the BIOS
  - configuring the SBC

## Before you begin

Change the position of DIP switch #3 on the SBC to the Closed or ON position.

## To upgrade the BIOS

1 Insert the bootable BIOS upgrade disk into drive A and power on the server.

**Note:** You can obtain a BIOS upgrade disk from your Nortel Networks customer support representative.

2 Allow the flash process to complete.

3 Power down the system.

4 Remove the top cover.

5 Set DIP switch 3 to the ON position.

6 Power on the server.

**Result:** A message appears on the boot screen that the system is loading BIOS defaults.

7 Power off the server after seeing the above message.

8 Return DIP switch 3 to the OFF position.

9 Replace the top cover.

10 Restart the system.

11 Configure the BIOS as described in the following procedure.

## To configure the Pentium III SBC

1 Power on the system and press F2 to enter the CMOS Setup.

**Note:** For the following steps, use the arrow keys to navigate menus, and press Enter to make a selection.

**Result:** The Setup Utility starts. The screen has two areas:

- Options: The Options menu is on the left side of the screen, and is composed of Basic options, Advanced options, and PCI options.
- Summary Information: The current settings appear on the right side of the screen.

2 Select the items described in the tables that follow.

## Pentium III BIOS basic options

**Note:** The defaults must be loaded first.

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| Time and Date | Set time and date | N/A | Current Date/Time |
| Floppy Disks | Floppy Controller | Enabled | Enabled |
| | Select drive A Type | 3.5” 1.44 Mbytes | 3.5” 1.44 Mbytes |
| | Select drive B Type | Disabled | Disabled |
| IDE Adapter 0 | Master | CD-ROM | CD-ROM |
| | Slave | None | None |
| IDE Adapter 1 | Master | None | None |
| | Slave | None | None |
| Cache Memory | Memory Cache | Enabled | Enabled |
| | Cache System BIOS area | Write protect | Write protect |
| | Cache Video BIOS area | Write protect | Write protect |
| | Cache Base 0–512 kbytes | Write back | Write back |
| | Cache Base 512k–640 kbytes | Write back | Write back |
| | Cache Extended Memory area | Write back | Write back |
| | Cache A000–AFFF | Disabled | Disabled |
| | Cache B000–BFFF | Disabled | Disabled |
| | Cache C800–CBFF | Disabled | Disabled |
| | Cache CC00–CFFF | Disabled | Disabled |

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| | Cache D000–D3FF | Disabled | Disabled |
| | Cache D400–D7FF | Disabled | Disabled |
| Boot Options | Summary screen | Enabled | Enabled |
| | Floppy check | Enabled | Enabled |
| | Quiet boot | Disabled | Disabled |
| | Post errors | Disabled | Disabled |
| | Hard disk pre-delay | Disabled | Disabled |
| Keyboard features | Numlock | Auto | Auto |
| | Key click | Disabled | Disabled |
| | Keyboard auto repeat rate | 30/sec | 30/sec |
| | Keyboard auto repeat delay | 1/2 sec | 1/2 sec |
| System Memory | Verify only | | |
| Extended Memory | Verify only | | |

## Pentium III BIOS advanced options

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| Integrated Peripherals | Serial Port A | Enabled | Enabled |
| | Serial Port A: Base I/O Address | 3F8 | 3F8 |
| | Serial Port A: Interrupt | IRQ 4 | IRQ 4 |
| | Serial Port B | Enabled | Enabled |
| | Serial Port B: Mode | Normal | Normal |
| | Serial Port B: Base I/O Address | 2F8 | 2F8 |
| | Serial Port B: Interrupt | IRQ 3 | IRQ 3 |
| | Parallel Port | Enabled | Enabled |
| | Parallel Port: Mode | Bidirectional | Bidirectional |
| | Parallel Port: Base I/O Address | 378 | 378 |
| | Parallel Port: Interrupt | IRQ 7 | IRQ 7 |
| | Floppy Disk Controller | Enabled | Enabled |
| | Floppy Disk Controller: Base I/O Address | Primary | Primary |
| | Local Bus IDE Adapter | Enabled | Enabled |

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| | Adaptec Ultra SCSI Adapter | Disabled | Enabled for non-RAID<br>Disabled for RAID |
| Advanced Chipset Control | ECC ConfigDRAM Speed | ECC | ECC |
| | Enable Memory Gap | Disabled | Disabled |
| | Alias ISA 512–528 Mbytes | Disabled | Disabled |
| | DMA Aliasing | Enabled | Enabled |
| | 8-bit I/O Recovery | 4.5 | 4.5 |
| | 16-bit I/O Recovery | 4.5 | 4.5 |
| | Watchdog Timer Status | Disabled | Disabled |
| | Watchdog Timer Delay | 1.2 sec | 1.2 sec |
| | ISA bus GAT | Disabled | Disabled |
| | PCI Delayed transactions | Enabled | Enabled |
| PCI configuration | PCI IRQ Line 1 | IRQ 9 | IRQ 9 |
| | PCI IRQ Line 2 | IRQ 10 | IRQ 10 |
| | PCI IRQ Line 3 | IRQ 11 | IRQ 11 |
| | PCI IRQ Line 4 | IRQ 15 | IRQ 15 |
| | USB IRQ Enabled | No | No |

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| | Latency timer | Auto | Auto |
| | Cache line size | Auto | Auto |
| | ISA Graphics Device Installed | No | Yes |
| | PCI/PNP ISA UMB Region Exclusion C800–DFFF | Available | Available |
| | PCI/PNP ISA IRQ Resource Exclusion: IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10, IRQ11, IRQ12, IRQ14, IRQ15 | Available | |
| System Management | | Verify | Verify |
| PS/2 Mouse | | Enabled | Enabled |
| On-board Speaker | | Enabled | Enabled |
| Use Multiprocessor Spec | | 1.1 | 1.4 |

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| CPU BIOS Update | | Enabled | Enabled |
| Plug & Play OS | | No | No |
| Secured Setup Configuration | | Yes | Yes |
| Reset configuration data | | No | No |
| Large Disk Access Mode | | DOS | DOS |

## Pentium III BIOS security options

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| Supervisor Password is | | Clear | Clear |
| User Password is | | Clear | Clear |
| Set Supervisor Password | | Enter | Enter |
| Set User Password | | Enter | Enter |

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| Password on Boot | | Disabled | Disabled |
| Fixed Disk Boot Sector | | Normal | Normal |
| Disk Access | | Supervisor | Supervisor |
| Virus Check Reminder | | Disabled | Disabled |
| System Backup Reminder | | Disabled | Disabled |

## Pentium III BIOS power options

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| Power Savings | | Disabled | Disabled |
| Standby Timeout | | Off | Off |
| Auto Suspend Timeout | | Off | Off |
| Hard Disk Timeout | | Disabled | Disabled |
| Video Timeout | | Disabled | Disabled |
| Resume on Modem Ring | | Off | Off |
| Resume on Time | | Off | Off |
| Resume time | | 00:00:00 | 00:00:00 |

## Pentium III BIOS boot options

| Default settings | CallPilot setting |
|---|---|
| Diskette Drive | Diskette Drive |
| Hard Drive | ATAPI CD-ROM Drive |
| ATAPI CD-ROM Drive | Hard Drive |
| Removable Devices | Removable Devices |
| Network Boot | Network Boot |

| Device | Option |
|---|---|
| Hard drive | Bootable add-in card |
| Removable Devices | Legacy floppy drive |

## Pentium III BIOS server options

| Item | Option | Default setting | CallPilot setting |
|---|---|---|---|
| Console Redirect Port | | Disabled | Disabled |
| Console Redirect Baud Rate | | 9600 | 57600 |

## IRQ mapping table

Refer to "IRQ mapping table" on page 192.

# Dual Inline Memory Modules

## Introduction

Dual Inline Memory Modules (DIMMs) SDRAM P100 are the memory modules located on the SBC. The gold-plated edge connectors on DIMMs are designed to plug into matching edge-connector slots. The design allows you to add or remove these modules repeatedly without tools or damage. Install DIMMs on the Pentium III SBC only.

## Capacity

Use 168-pin Error Correction Control (ECC) SDRAM utilizing DIMM technology. A module has a capacity of 32, 64, or 128 Mbytes or 256 Mbytes. SDRAM DIMMs require only one slot filled to compose a bank. There are two slots or banks on the SBC. Install DIMMs in any slot, combination, or order. Nortel Networks recommends that bank 0 (DIMM 1) be filled to enable troubleshooting procedures. Install up to 512 Mbytes of memory. These are P100 FSB SDRAM DIMMs.

## Requirements

To add DIMMs to the card, you require the following:

- an antistatic wrist strap
- DIMMs with gold-plated edge connectors

## To add SDRAM DIMMs to the SBC card

1 Remove the SBC card from the server.

**Note:** To remove old DIMMs, perform steps 2 and 3. To add new DIMMs, go to step 5.

2 Push the DIMM release tab outwards at both sides of the DIMM to be removed.

3 Hold the DIMM by its edges, being careful not to touch its components. Remove the DIMM by lifting it away from its slot. Store it in an antistatic package.

4 Remove other DIMMs as necessary.

5 Orient the DIMM so that the two notches in the bottom edge of the DIMM align with the keyed slot.

6 Insert the bottom edge of the DIMM into the slot and press down firmly on the DIMM until it seats correctly.

**CAUTION**

**Risk of equipment damage**

When installing a DIMM in slot 1, the IDE locking latch might get in the way and cause a memory chip to snap out of the board.

When the DIMM seats correctly, release tabs lock back to an upright position. If the DIMM does not seat correctly, remove it and reinstall. Do not force the locking tabs to close.

7 Repeat the above two steps to install each additional DIMM.

8 Replace the SBC card in the server.

# Section H: Adding and replacing switch-specific boards and cards

## In this chapter

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# Replacing MPB16 boards

## Introduction

This section describes replacing MPB16-4, MPB16-2T boards, and MPC-8 cards.

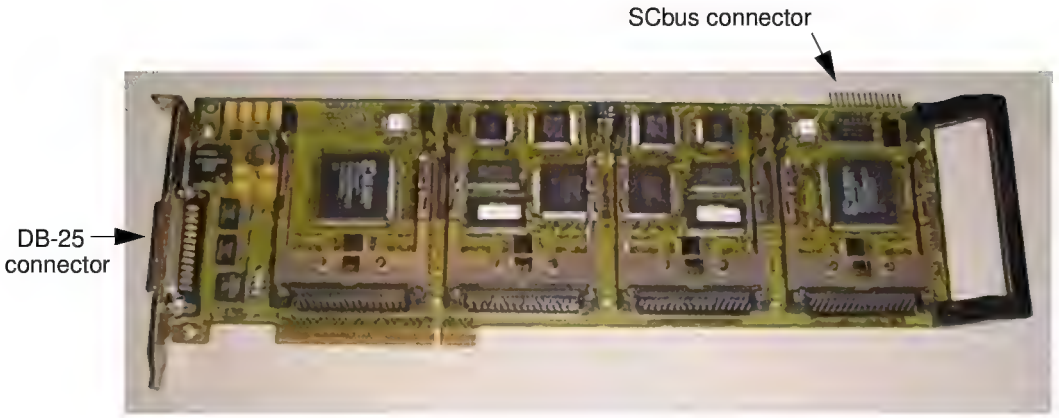
## The parts to install

The MPB16 board comes in two different versions:

- MPB16-4 (for the Meridian 1, MSL-100/DMS-100, Lucent, Mitel, and Rolm switches)
- MPB16-2T (for the Matra switches)

### MPB16-4 (NTRH20BA)

There are four slots available on the MPB16-4 (NTRH20BA) to hold four MPC-8 cards.



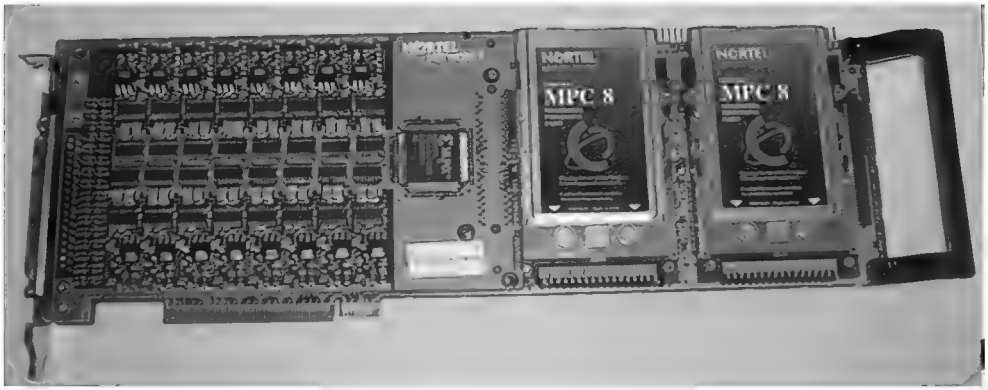

There is also a DB-25 pin digital connector.

### MPB16-2T (NTRH21CA) board

The MPB16-2T/LS*16 is a PCI form-factor card that includes two bays to hold MPC-8 DSP cards.

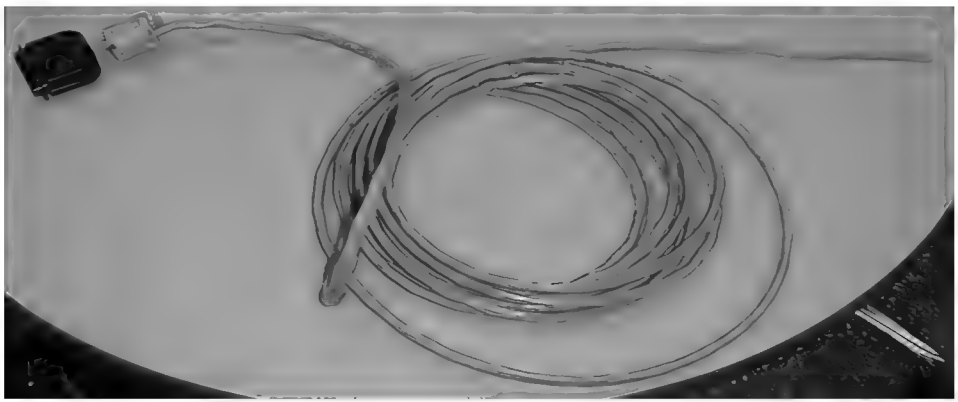
**Note:** The MPB16-2T/LS*16 is referred to as the MPB16-2T for the remainder of this document.

Below is a picture of the MPB16-2T with analog mezzanine and two MPC-8 cards installed.



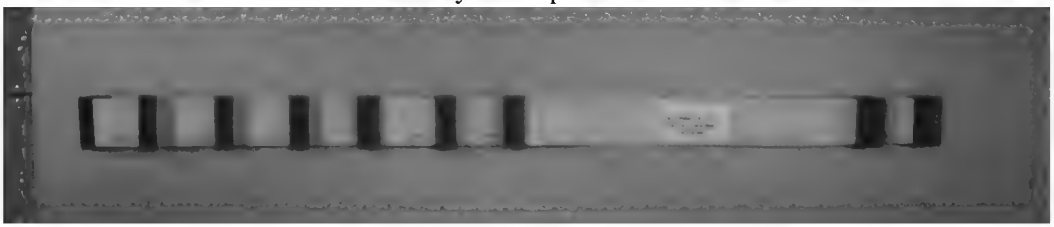

### Analog loop start cable (NTRH0914)

The following photograph shows the 10-meter NTRH0914 analog loop start cable. The DB-37 end connects at the back of the server to the MPB16-2T. The other end of the cable must be stripped and connected to a bix block servicing the Matra switch.



### CT-Bus cable (NTRH0915)

The CT-Bus ribbon cable is used to series two MPB16-2T cards in a single server. The connectors are keyed to optimize correct installation.



### MPC-8 card

The MPC-8 is a credit card-sized PC card that plugs into all MPB16-2Ts. The MPC-8 provides multimedia expansion to the MPB16-2T. Below is a picture of an MPC-8.

## Maximum number of MPC-8s per server

The server supports up to a maximum of two fully loaded MPB16 boards, which provides 96 channels, or 64 channels (if the MPB16-2T board is used), as shown in the following table:

| | Maximum multimedia channels | Optional MPC-8s |
|---|---|---|
| One MPB16-4 | 48<br>(16 of which are built into the MPB16-4 board) | 4<br>(provides up to 32 additional channels) |
| Two MPB16-4s | 96<br>(32 of which are built into the two MPB16-4 boards—16 channels per board) | 8<br>(provides up to 64 additional channels) |
| One MPB16-2T | 32<br>(16 of which are built into the MPB16-4 board) | 2<br>(provides up to 16 additional channels) |
| Two MPB16-2Ts | 64<br>(32 of which are built into the two MPB16-4 boards—16 channels per board) | 4<br>(provides up to 32 additional channels) |

## Maximum number of MPB16-2Ts per server

The server supports up to a maximum of two fully loaded MPB16-2Ts, which provide 32 channels each for a maximum of 64 channels, as shown in the following table:

| | Embedded multimedia channels | Optional MPC-8s |
|---|---|---|
| One MPB16-2T | 16 | 2<br>(provides up to 16 additional channels) |
| Two MPB16-2Ts | 32 | 4<br>(provides up to 32 additional channels) |

## Installing the MPC-8 cards

**CAUTION**

**Risk of electrical damage**

Wear an antistatic ESD wrist strap when handling multimedia processing boards and cables.

**ATTENTION**

**Risk of system damage**

MPC-8 cards are not hot-pluggable. Power down your server before installing the cards.

1 Slide the MPC-8 into any available bay on the MPB16-2T with the label side up.

2 Press the MPC-8 gently into the bay until you feel the card slide firmly into place. If the card is placed in upside down, it will not slide completely into the bay.

**Note:** To simplify the installation, install the MPC-8 into the MPB16-2T prior to installing the MPB16-2T in the server.

## Installing the MPB16-2T board

**DANGER**

**Risk of electrical shock**

Disconnect the AC power and remove the AC power cord from the host product.

1 Remove the chassis cover.

2 Disconnect the CT-Bus cable from the existing MPB16-2T board.

3 Remove the existing MPB16-2T from its slot in the backplane. Retain the screw to reuse when installing the new board.

4 Press the MPB16-2T firmly into its slot in the backplane.

**Note:** Take care to slide the MPB16-2T board carefully past the protective foil strips, as they are easily damaged.

5 Secure the board at the rear of the server using the same screw you removed earlier.

6 If are installing a second MPB16-2T board, repeat steps 1 through 4.

7 If you have two MPB16-2Ts installed in the server, use the CT-Bus cable to connect the two boards. This cable is keyed; do not force the cable onto the card connectors.

8 Replace the server cover.

**Note:** Be careful not to pinch any cabling when sliding the server cover back on.

9 Connect the NTRH0914 loop start cable from the MPB16-2T board to the Matra switch. This cable connects to the punch-down panel servicing the Matra switch.

10 Run the Configuration Wizard to detect the new hardware.

**Result:** The MPB16 installation is complete.

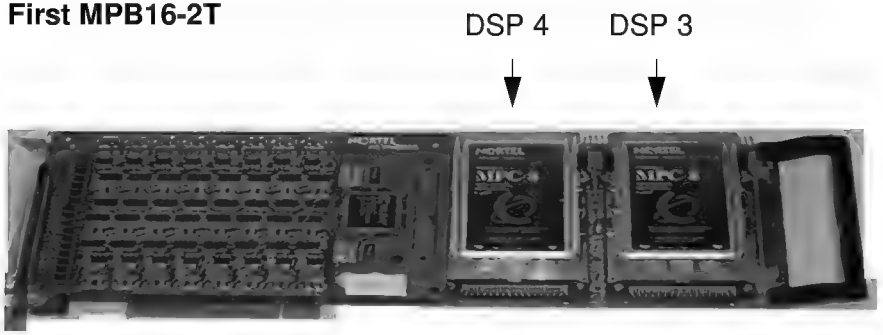
## DSP numbering

Use the following table as a guide for DSP numbering with multiple MPB16-2T cards:

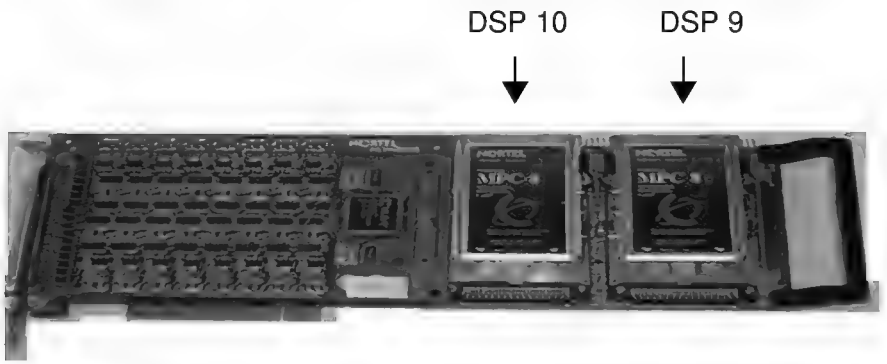
| MPB16-2T board | DSP assignments |
|---|---|
| First MPB16-2T | 1 and 2 = embedded<br>3 and 4 = MPC-8 |
| Second MPB16-2T | 7 and 8 = embedded<br>9 and 10 = MPC-8 |

MPC-8 cards are counted from the handle side of the MPB16-2T, as shown in the following photograph.

**First MPB16-2T**




**Second MPB16-2T**




## Installing the MPB16-4 boards

**DANGER**

**Risk of electrical shock**

Disconnect the AC power and remove the AC power cord from the host product.

1 Remove the chasis cover.

2 Disconnect the SCbus cable from the existing MPB16-4 board.

3 Remove the existing MPB16-4 board from its slot in the backplane. Retain the screw to reuse when installing the new board.

4 Press the MPB16-4 boardfirmly into its slot in the backplane.

**Note:** Take care to slide the MPB16-4 board carefully past the protective foil strips, as they are easily damaged.

5 Secure the board at the rear of the server, using the same screw you removed earlier.

6 If are installing a second MPB16-4 board, repeat steps 1 through 4.

7 Replace the server cover.

**Note:** Be careful not to pinch any cabling when sliding the server cover back on.

8 Run the Configuration Wizard to detect the new hardware.

**Result:** The MPB16 installation is complete.

# Adding a VoiceBridge 2000 card

## Introduction

This section describes how to add a VoiceBridge 2000 Digital PBX/CBX integration card (also referred to as the VB2000 card). This card is installed in the server and supports connection to a Lucent, Mitel, or Rolm switch.

## Types of VoiceBridge 2000 cards

| Switch | VB2000 card model | Part number |
|---|---|---|
| **Lucent 2-wire port type**<br>Lucent Definity Generic 3 | VB-2009 | NTRH9060 |
| **Mitel**<br>SX-200D, SX-200 Light, SX-2000 Light, SX-2000 S, SX-2000 VS | VB-2007 | NTRH9059 |
| **Rolm**<br>8000 CBX, 9000 CBX, 9751 CBX | VB-2002 | NTRH9057 |

**Note:** These cards are identical in external appearance, and the procedures for installing and configuring them are the same.

The 1001rp can have a maximum of two VoiceBridge 2000 boards installed. The first board should be installed in ISA slot 1, and the new board in ISA slot 2. Refer to the picture on page 190 for the location of the ISA slots.

## To install the VoiceBridge 2000 card

1. Shut down Windows NT and power down the server.
2. Remove the chassis cover.
3. Write down the serial number of the new VoiceBridge 2000 board.

4 Remove the screw holding on the cover of the ISA slot and remove the cover.

5 Insert the VoiceBridge 2000 board and secure it with the screw.

6 Connect the SCbus cable so that it interconnects both of the VoiceBridge boards and the MPB16-4 board.

7 Replace the chassis cover.

8 Connect the external cable to the PBX connector on the back of the VoiceBridge 2000 board.

9 Restart the server and log on to Windows NT.

10 Run the VTG Configuration application (d:\nortel\bin\vtgconfiguration.exe).

11 Click ADD.

**Result:** The Add Board dialog box appears.

12 Enter the serial number of the new VTG board and click OK.

13 Click Close.

**Result:** The VTG Configuration closes.

14 Run the Configuration Wizard to reconfigure the VTG channel configuration.

The VoiceBridge 2000 card installation is complete.

# Replacing the VoiceBridge 2000 card

## Introduction

This section describes replacing the VoiceBridge 2000 Digital PBX/CBX integration card (also referred to as the VB2000 card). This card is installed in the server and supports connection to a Lucent, Mitel, or Rolm switch.

## Types of VoiceBridge 2000 cards

| Switch | VB2000 card model | Part number |
|---|---|---|
| **Lucent 2-wire port type**<br>Lucent Definity Generic 3 | VB-2009 | NTRH9060 |
| **Mitel**<br>SX-200D, SX-200 Light, SX-2000 Light, SX-2000 S, SX-2000 VS | VB-2007 | NTRH9059 |
| **Rolm**<br>8000 CBX, 9000 CBX, 9751 CBX | VB-2002 | NTRH9057 |

**Note:** All these cards are identical in external appearance, and the procedures for installing and configuring them are the same.

## To install the VoiceBridge 2000 card in the server

1. Disconnect the external cable from the VoiceBridge2000 card.
2. Remove the chassis cover.
3. Disconnect the internal SCbus cable from the VoiceBridge2000 card.
4. Remove the existing VoiceBridge 2000 card from its ISA slot.
5. Remove the new VoiceBridge 2000 card from its ESD bag.

6 Write down the VoiceBridge 2000 card serial number, which is printed on the backplate of the card, and the slot number. The serial number is shown as "S/N: xxxxx."

7 Insert the VoiceBridge 2000 card into the ISA slot. The PBX connector should be positioned in the open slot in the backplane.

8 Replace and tighten the retaining screw to secure the board.

9 Repeat steps 2 to 4 for each VoiceBridge 2000 card.

10 The SCbus cable consists of two connectors at one end (intended for the MPB16-4s), a large gap with no connectors, and then seven connectors at the other end (intended for the VoiceBridge 2000 cards).

Use the SCbus cable to connect the MPB16-4 and VoiceBridge 2000 cards.

11 Put the cover back on the server.

**Note:** Be careful not to pinch the SCbus cable when sliding the server cover back on.

12 Power up the server and log on to Windows NT.

13 Run the VTG Configuration application (d:\nortel\bin\vtgconfiguration.exe).

14 Select the serial number of the board that was removed and click Delete.

15 Click ADD.

**Result:** The Add Board dialog box appears.

16 Enter the serial number of the new VTG board and click OK.

17 Click Close.

**Result:** The VTG Configuration closes.

18 Run the Configuration Wizard to reconfigure the VTG channel configuration.

**Result:** The VoiceBridge 2000 card installation is complete.

# Replacing the DTI/480SC board

## Introduction

This section describes replacing the DTI/480SC board. The DTI/480SC board provides a T1 network interface to the switch.

### Switch settings

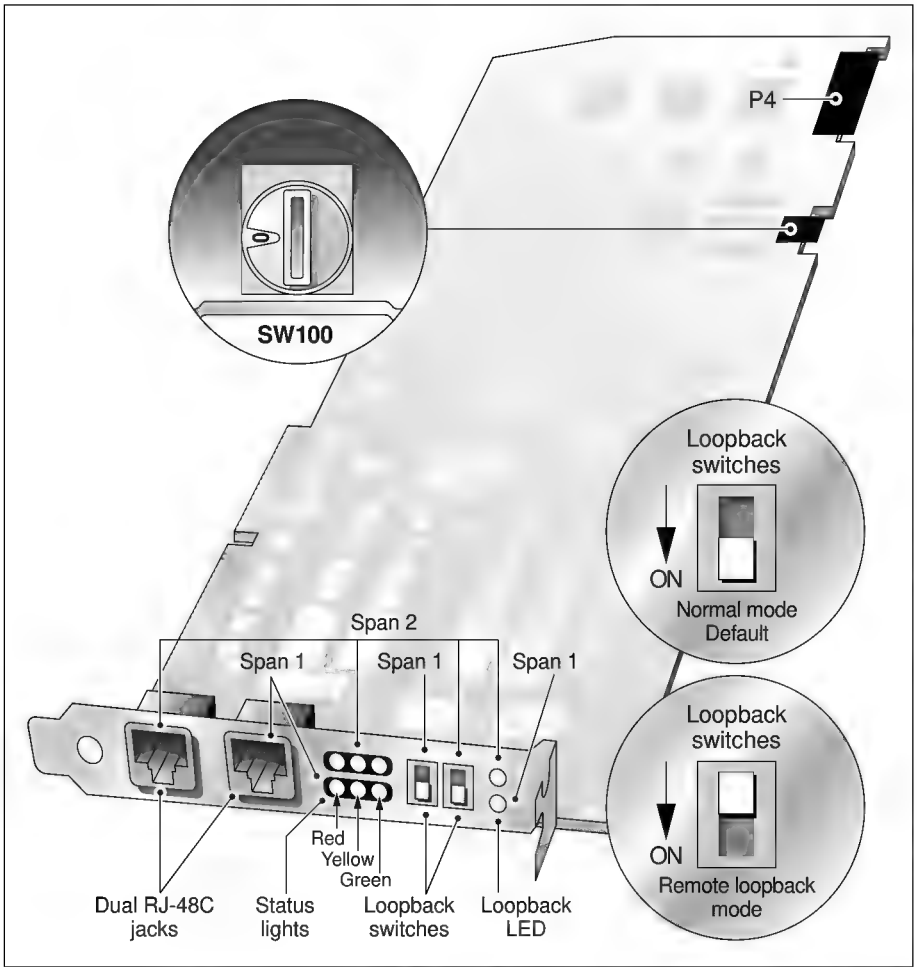
- Board locator switch (SW100)

  Switch SW100 is used to assign the unique board locator ID. The installation procedure instructs you to assign a unique board locator ID to each board.

- Remote Loopback Switch

  The loopback switch is factory-set to ON for normal mode. You can move the loopback switch to the OFF position for loopback mode as part of troubleshooting a system problem.

### DTI/480SC board - switch locations




## Installing the DTI/480SC boards

1 Remove the chassis cover.

2 Remove the existing DTI/480SC from its ISA slot in the backplane. Retain the screw to reuse when installing the new board.

3 Remove a DTI/480SC board from its ESD bag.

4 On the board, dial the rotary switch (SW100) to select a number. Set the first board to 0, the second to 1, and so on.

The switch has hexadecimal numbers ranging from 0 to F inclusive. See "DTI/480SC board - switch locations" on page 265.

5 Ensure that the loopback switch is in the ON (down) position. See "DTI/480SC board - switch locations" on page 265.

6 Use the slot's board guides as you insert the board edge connector into the slot. Press firmly until the board is securely seated in the slot.

7 Replace and tighten the retaining screw to secure the board.

8 Repeat steps 2 to 7 for each DTI/480SC board you are installing.

9 Use the SCbus cable to connect the MPB16-4 and DTI/480SC boards. See "DTI/480SC board - switch locations" on page 265 for the location of the P4 connector.

The SCbus cable consists of two connectors at one end (intended for the MPB16-4s), a large gap with no connectors, and then seven connectors at the other end (intended for the DTI/480SC boards).

10 Put the cover back on the server.

**Note:** Be careful not to pinch the SCbus cable when sliding the server cover back on.

11 Run the Configuration Wizard to detect the new hardware.

**Result:** The board installation is complete.

# Section I: Media drive bay

## In this section


About the media drive bay 268

Removing drive carriers from the media drive bay 269

Replacing a drive in the media bay 274

# About the media drive bay

## Overview

Media drive bays contain media devices, including CD-ROM and tape and floppy drives. If your media drives become damaged or you want to upgrade, you can replace these drives. This section provides procedures for replacing or upgrading any device in the drive bay.

## Procedures

Perform the procedures for replacing media devices in the following order:

1. removing drive carriers
2. removing media drives
3. Replacing a drive in the media bayr

# Removing drive carriers from the media drive bay

## Introduction

When replacing the media hard drives, the first step is to remove the drive carriers from the drive bay. Each drive carrier holds one media drive.

## Requirements

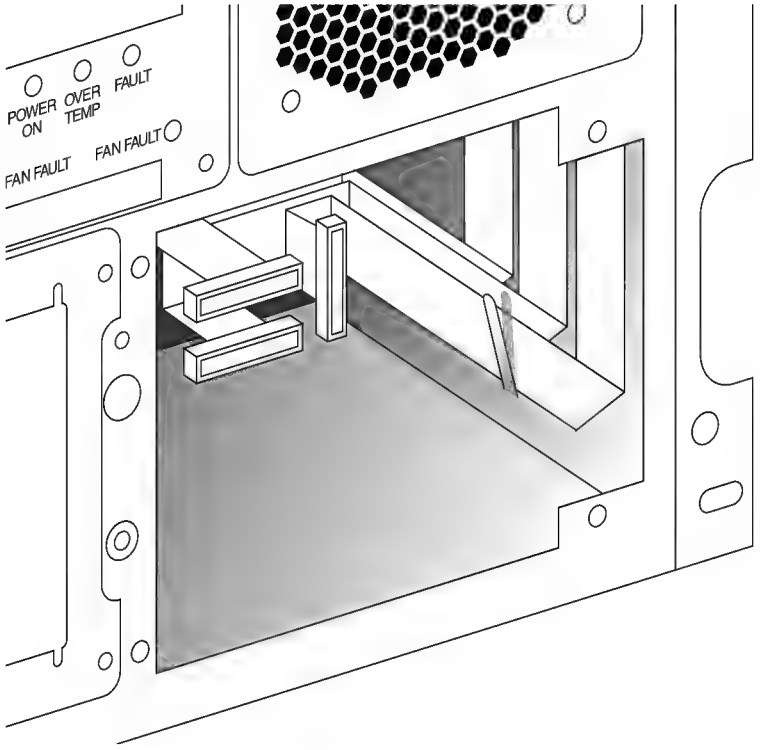
To remove the drive carrier from the media drives, you require the following:

- keys for the front bezel doors
- a Phillips screwdriver
- cable identification labels
- a pen or pencil

## Locate the media drives

Media drives are located at the front of the chassis, below a cooling fan, and beside the hot-swappable SCSI drive bay. Access installed media devices through the key-lock media door.

## The media drive bay

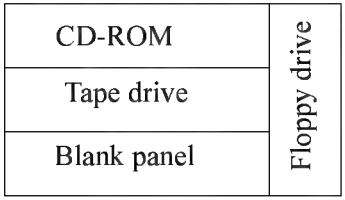



## Media carrier

The media drive houses up to four devices. A drive carrier holds each device. Where no device is installed, a blank panel is secured to the drive carrier for protection.

## Media carrier slot assignment

The carrier is designed to stack three devices horizontally, and to house the floppy drive vertically to the right side of the carrier frame. The following illustration shows the orientation of the drives, and the standard slot assignment for each of the required devices:




## To remove device carriers from the media drive bay

**DANGER**

**Risk of electrocution**

High current inside the chassis can cause severe injury.

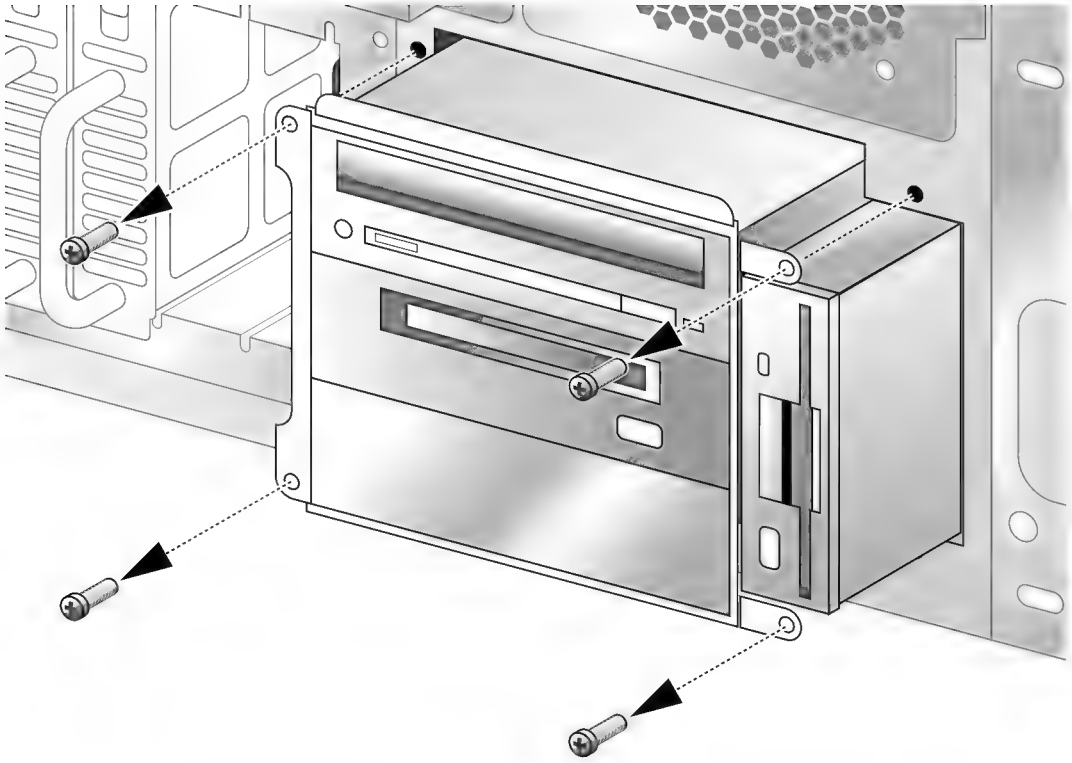
**CAUTION**

**Risk of equipment damage**

Electrostatic discharge due to improper handling can cause components to be damaged or rendered unusable.

1 Remove the front bezel from the chassis.

2 Locate the media drive, and loosen the four Phillips-head screws and washers securing the carrier to the drive bay.



3 Holding cables away from the drive bay, pull the carrier away from the chassis until the connectors attached behind the components can be reached.

**CAUTION**

**Risk of equipment damage**

Cables can be easily damaged during this procedure. Check that no cables are crossed when moving the carrier in and out of the drive bay.

4 Label and disconnect cables from installed media drives, and then free the carrier from the chassis.

## See also

- Removing and installing the front bezel
- Configuring and replacing hard drives

## What's next?

Once you have removed the device carriers from the media drive bay, remove the media drive devices.

# Replacing a drive in the media bay

## Introduction

The third step in replacing a media drive is to install the new drive in the media bay.

## Requirements

To install media drives into the carrier, you require the following:

- a Phillips screwdriver
- four screws from the previous procedure
- keys for locking the front bezel

## To install a drive in the media bay

1. Slide the new drive into the drive carrier, and secure it with four undercut Phillips-head screws.
2. Reattach the removed devices to access a specific drive slot.
3. Position the carrier to the drive frame, leaving enough room to reach behind the carrier, and attach the connectors.
4. Carefully connect the device and power cables, and then slide the carrier into the drive bay, checking that the cables are free and undamaged.

   **Note:** If your tape drive is a narrow device, you require a wide to narrow adapter to connect to the wide SCSI cable.
5. Secure the carrier to the chassis with four Phillips-head screws.
6. Replace and lock the front bezel.

# Chapter 7

# Installing operating system software

## In this chapter


Before you begin the installation 276
Copying drivers from CD 279
Preparing the platform 281
Installing the Windows NT server operating system 283
Formatting additional hard disks/partitions 295
Installing WinNT 4.0 Service Pack 5 298
Installing the tape device drivers 300
Installing video card device drivers 302
Install RAID Monitoring/Administration utility 305
Installing pcANYWHERE32 306
Making an emergency repair disk 325

# Before you begin the installation

## Introduction

This chapter outlines procedures for installing Windows NT 4.0 software on the server.

Some of these procedures are necessary only if you must install the base software as a failure recovery procedure.

## Requirements

The following is a list of the media and data components you should have before starting the Windows NT installation.

### Disks received with CallPilot

- Windows NT setup disks (3 disks)
- MS-DOS 6.20 setup disks

### Disks you must create

You must copy several drivers from the Application Server Driver CD to disk before starting the Windows NT installation. You will be prompted during the installation to insert the driver disk when appropriate.

Refer to "Copying drivers from CD" on page 279 to determine the procedure for working with the drivers.

| Label | Contents |
|---|---|
| NTRH8003 PCI RAID driver | Mylex RAID Driver |
| NTRH8023 SCSI driver | Symbios SCSI Driver |
| NTRH8013 PCI Ethernet drivers | Intel Ethernet NIC Driver |

### CDs

- Application Server Driver CD

- MAS 2.0 Operating System CD

### Configuration information

Use the following table to record data that you need to enter during the installation of Windows NT. Consult with the company's network administrator to obtain the values for the items listed in the table.

| Item | Information from company's network administrator |
|---|---|
| Name | |
| Company name | |
| Computer name | |
| Administrative account password | |
| **Remote Access** | |
| Begin | |
| End | |
| From | |
| To | |
| Excluded | |
| **Network - IP address** | |
| IP address | |
| Subnet mask | |
| Default gateway | |
| **Network - DNS** | |
| Host name (= Computer name) | |

| Item | Information from company's network administrator |
|---|---|
| Domain | |
| DNS Service Search Order | |
| Domain Suffix Search Order | |
| **Network - WINS** | |
| Primary WINS server | |
| Secondary WINS server | |

# Copying drivers from CD

## Introduction

The network drivers that you need to install during the Windows NT installation are provided on the Application Server Driver CD that is supplied with your CallPilot system. For some drivers to be functional, you must copy the drivers to disks and label them accordingly.

## Requirements

- Application Server Driver CD
- blank disks (supplied with CallPilot)

## To copy drivers to disk

1 Power up the server.

2 Insert the Application Server Driver CD into the CD-ROM drive.

**Result:** The CD starts a DOS session. After a few minutes, the MS-DOS 6.2 Startup Menu appears.

3 Select the appropriate platform type and press Enter.

**Result:** The platform menu appears.

4 Select the appropriate option, depending upon the driver you want to copy.

**Result:** The system responds with the following message: `Please insert a floppy into drive A. Press any key to continue...`

5 Insert a disk into the floppy drive and press any key.

**Result:** You are asked if you want to format the disk. Press **N** if the disk is blank or **Y** if the disk contains unwanted data.

If you select **Y**, DOS performs a quick format of the disk and alerts you when the format is complete.

6 The drivers are then copied to disk. When the copying is complete, the following message appears: `Diskettes successfully completed.`

Some drivers require more than one disk. After DOS has finished copying drivers to Disk 1, it displays the following message: `[x] files copied`. You are prompted to insert a blank disk into drive A. Repeat step 5 for each subsequent disk.

7 Repeat steps 4 to 6 for each driver you want to copy.

8 Nortel Networks recommends that you label the disks with the name specified in the "Disks you must create" table on page 276.

# Preparing the platform

## To create the FAT partition

1. Insert MS-DOS Setup Disk 1 in the floppy drive. Power up the system.

   **Result:** The system starts and after approximately 3 minutes displays the MS-DOS Setup screen.

2. Press F3, and when prompted, press F3 again.

   **Result:** The A:\> prompt appears.

3. Type **fdisk** and press Enter.

   **Result:** The Fixed Disk Setup Program appears.

4. Type **1** (Create DOS Partition) and press Enter.

   **Result:** The Create DOS Partition menu appears.

5. Type **1** (Create Primary DOS Partition) and press Enter.

   **Result:** You are prompted to use the maximum size for the partition.

6. Type **N** (Do not use maximum partition size) and press Enter.

   **Result:** You are prompted to enter primary partition size.

7. Enter 600 as the partition size for 4095 Mbyte hard drives, or 1024 for 9 Gbyte hard drives, and press Enter.

   **Result:** A 600 or 1024 Mbyte Primary DOS partition is created.

8. Press Escape to exit.

   **Result:** The main fdisk menu appears.

9. Type **2** (Set active partition) and press Enter.

   **Result:** You are prompted to enter the active partition.

10. Type **1** and press Enter.

    **Result:** The primary partition is set to active.

11. Press Escape to exit.

    **Result:** The main fdisk menu appears.

12 Press Escape to exit the fdisk program.

**Result:** You are prompted to restart the system.

13 Press Ctrl + Alt + Delete to restart the system.

**Result:** The system restarts. Power down the computer to prepare for the Windows NT installation.

# Installing the Windows NT server operating system

## To install the Windows operating system

**ATTENTION**

Before you start, ensure that the server is *powered down.*

1 Insert Windows NT Setup Disk 1 in the floppy drive, and power up the server.

**Result:** The system starts, the disk loads, and after approximately five minutes, a prompt appears for Disk 2.

2 Insert Windows NT Setup Disk 2, and press Enter.

**Result:** Setup loads files from Disk 2. The Windows NT Setup screen appears.

3 When prompted, press Enter to begin installation of Windows NT.

**Result:** On the Windows NT Server Setup screen, Setup prompts you to select automatic or manual detection of mass storage controllers.

4 Type **S** to skip automatic detection of mass storage controllers.

**Result:** Setup prompts you to select mass storage controllers.

5 Type **S** to select a controller.

**Result:** Setup displays a list of controllers.

6 Use the UP arrow key to scroll through the list and highlight IDE CD-ROM (ATAPI 1.2) / PCI IDE Controller, and press Enter.

**Result:** Setup prompts you to insert Windows NT Setup Disk 3 in the floppy drive.

7 Insert Disk 3 and press Enter.

**Result:** The Setup window appears.

8 Type **S** to select another controller.

**Result:** Setup displays a list of controllers.

9 Highlight Other (Requires disk provided by a hardware manufacturer) and press Enter.

**Result:** You are prompted to insert the manufacturer's support disk.

**Note:** You should have created this disk as part of the preparation for installation. If you have not created this disk, refer to "Copying drivers from CD" on page 279 for instructions on creating the disk.

10 If your system has a RAID controller, insert the NTRH8003 PCI RAID driver disk. Otherwise, insert the NTRH8023 Symbios SCSI driver disk. Press Enter.

**Result:** You are prompted to choose the correct driver for the installed hardware.

11 Highlight the appropriate driver for the platform and operating system version and press Enter.

**Result:** The driver is loaded from the disk.

12 Press Enter to continue the setup.

**Result:** Setup prompts you to insert Windows NT Setup Disk 3 in the floppy drive.

13 Insert Disk 3 and press Enter.

**Result:** Setup loads drivers from the disk.

**ATTENTION**

On 9-Gbyte hard disk systems, the following message might appear: `Setup has determined that one of your hard disks has more than 1024 cylinders...`. This is not a cause for concern.

14 Remove Windows NT Setup Disk 3 from the floppy drive.

15 Press Enter to continue.

**Result:** The system loads more driver files, then prompts you to insert the Windows NT Server CD-ROM into the CD-ROM drive.

16 Insert the CD-ROM labeled "MAS 2.0 Operating System CD" and press Enter.

**Result:** The Windows NT licensing agreement appears.

17 Setup requires you to scroll down to the end of the text with the Page Down key. Press F8 to agree with the licensing agreement.

**Result:** Setup displays the list of installed hardware components.

18 Highlight The above list matches my computer, and press Enter.

**Result:** The Windows NT disk partitioning screen appears.

19 Select C:FAT ... 600/1024MB option. Press Enter.

**Result:** The system responds with the following message: `The partition you have chosen is recognized by Windows NT but is unformatted or damaged. Setup will have to reformat this partition to install Windows NT on it.`

20 Type **C** to continue using the unformatted partition.

**Result:** The system responds with the following message: `You have asked to install Windows NT on the partition: "C: Unformatted or damaged..600MB or 1028MB.`

21 Highlight the Format the partition using FAT file system, and press Enter.

**Result:** Setup prompts you to choose the location where you want the Windows NT files installed.

22 Press Enter to accept the default installation path (\WINNT).

**Result:** Setup prompts you to perform a comprehensive disk check.

23 Press Enter to perform an exhaustive secondary examination of your hard drive.

**Result:** Setup prompts you to insert a driver disk.

24 If your system has a RAID controller, insert the NTRH8003 PCI RAID driver disk. Otherwise, insert the NTRH8023 Symbios SCSI driver disk. Press Enter.

**Result:** Setup copies installation files to the hard disk, and prompts you to restart.

25 Remove the MAS 2.0 Operating System CD from the CD-ROM drive, remove the SCSI/RAID driver disk from the floppy drive, and press Enter to restart the computer.

**Result:** The system restarts and begins the graphical portion of Windows NT setup. After approximately 3 minutes, you are prompted to insert the CD-ROM labeled “MAS 2.0 Operating System.”

## To complete the Windows NT 4.0 setup

1 Insert the MAS 2.0 Operating System CD in the CD-ROM drive and click OK.

**Result:** Setup copies files to the system, then it prompts you to start the Windows NT Setup Wizard.

2 Click Next to continue.

**Result:** Setup prompts you to enter the customer name and company name.

3 Enter the name and company name, and click Next.

**Result:** Setup prompts you to enter the product ID.

4 Enter the assigned product ID and click Next to continue. The product ID is listed on the Certificate of Authenticity that is supplied with your server.

**Result:** Setup prompts you to choose the Windows NT 4.0 licensing mode.

5 On the licensing mode screen, select Per server, specify 5 as the number of concurrent connections, and click Next to continue.

**Result:** Setup prompts you to enter the computer name.

**Note:** The customer supplies the computer name.

6 Enter the computer name, and click Next to continue.

**Result:** Setup prompts you to select the computer's role.

7 Select the radio button for Stand-Alone Server, and click Next to continue.

**Result:** Setup prompts you to enter the password for the Administrator account.

**Note:** Passwords are case-sensitive. Ensure that the Caps Lock key on the keyboard is not on accidentally.

8 Enter the Administrator account password, and reenter it to confirm it.

**Note:** If installing at a customer site, enter the password specified by the Network Administrator.

9 Click Next to continue.

**Result:** Setup prompts you to create an Emergency Repair Disk.

### To create an emergency repair disk

Because the Setup process installs further changes, if you create the emergency repair disk now, you must update the disk at the end of the installation process, using the RDisk.exe utility. To skip making a repair disk now, continue to step 13. When you are ready to make a repair disk (after installation is finished and just before putting the system into service), follow the procedure called "Making an emergency repair disk" on page 325. An emergency repair disk is important for support purposes.

10 Click Yes, create an emergency repair disk (recommended), and click Next to continue.

**Result:** Setup prompts you to select the Windows components to install.

### To install Windows components

11 Ensure that the component check boxes are selected as follows:

**a.** Accessibility Options, Games, Multimedia, and Windows Messaging components are unchecked.

**b.** Check the Accessories component and then click Details. Uncheck all subcomponents except for the WordPad component. Click OK when done.

**c.** Check the Communications component and then click Details. Uncheck all subcomponents except for the HyperTerminal component. Click OK when done.

12 Click Next to install the accessories you have chosen for Windows NT.

**Result:** Setup prompts you to begin the setup of Windows NT Networking.

13 Click Next to install Windows NT networking.

**Result:** Setup prompts you to select how Windows NT participates on the network.

### To configure the server for network use

14 Click This computer will participate on a network.

15 Ensure that the component check boxes are selected as follows:

- Wired to the network—Checked
- Remote access to the network—Unchecked

16 Click Next to continue.

**Result:** Setup prompts you to install the Internet Information Server.

17 Uncheck the "Install Microsoft Internet Information server" check box and click Next.

**Result:** Setup prompts you to install the network adapters.

18 Click Select from List to select the ELAN network card driver.

**Result:** Setup displays a list of network adapters.

19 Click Have Disk... to load the ELAN network card driver from the disk in the floppy drive.

**Result:** Setup prompts you to insert the network card driver disk for the ELAN card in the floppy drive.

20 Insert the NTRH8013 Ethernet driver disk in the floppy drive and click OK to continue. Specify the path if it is other than A:.

**Note:** You should have created this disk as part of the preparation for installation. If you have not created this disk, refer to "Copying drivers from CD" on page 279 for instructions on creating the disk.

**Result:** Setup prompts you to select the appropriate network card driver from a list.

21 Click the check box that describes the appropriate installed network adapter, and click OK to accept the selection.

**Result:** Setup returns to the Network Adapter setup screen. The driver you loaded from the floppy disk is listed and checked.

22 Click Next to continue.

**Result:** Setup prompts you to select the network protocols to install.

23 Ensure that the check boxes are selected as follows:

- TCP/IP Protocol: Checked
- NWLink IPX/SPX Compatible Transport: Unchecked
- NetBEUI Protocol: Unchecked

24 Click Next to continue.

**Result:** Setup prompts you to select which network services are installed.

25 From the Network Services Installation screen, click Select from List... .

**Result:** Setup displays a list of network services.

**26** Use the arrow keys to scroll to SNMP Service, then click OK.

**Result:** You are returned to the Network Services Installation screen.

**27** Click Select from List... to add additional network services.

**28** Select Microsoft TCP/IP Printing and click OK.

**Result:** You are returned to the Network Services Installation screen.

**29** Click Select from List... to add additional network services.

**30** Select Remote Access Service and click OK.

**Result:** You are returned to the Network Services Installation screen.

**31** Click Next to continue.

**Result:** Setup prompts you to confirm the installation of network components.

**32** Click Next to install the selected networking components.

**Result:** Files are copied to the system.

**33** Click Next to continue.

**Note:** At this point, Setup might prompt you with a dialog box indicating that the network card driver was loaded successfully, and you are offered a chance to run a diagnostics check. Follow the instructions on the screen to perform the test. A setup message might be: `A network card of this type is already installed in the system, do you want to continue?` Click OK to continue. This message appears when both the ELAN and CLAN cards are of the same make, model, and manufacturer. Click OK to complete the tests, then click OK to continue with the installation process.

**34** You are given the option to use DHCP to configure the network. Click No to indicate that you do not wish to install DHCP.

**Result:** Setup prompts you to configure the SNMP Service. Because this service is added only to provide additional Performance Monitor counters, you do not need to configure it.

**35** Click OK to accept the default SNMP configuration.

**Result:** The Add Remote Access Setup Device screen message displays the following message: `There are no RAS capable devices to Add. Do you want RAS setup to invoke the Modem Installer to enable you to add a modem?`

36 Click Yes to invoke the modem installer.

**Result:** The Install New Modem screen appears.

37 Check the box, Don't detect my modem, I will select it from a list.

38 Click Next.

**Result:** Manufacturers and models appear in the Install New Modem screen.

39 Select US Robotics Inc. from the Manufacturer list.

40 Select Sportster 28800-33600 External from the Model list.

**Note:** If the manufacturer and model for your modem is not listed, select "Standard Modem types" as the Manufacturer and "Standard 28,800 bps Modem" as the Model.

**ATTENTION**

If your modem is not listed and you have the manufacturer's installation disk, click Have disk... and follow the instructions on the screen.

41 Click Next on the Install New Modem screen showing manufacturers and models.

**Result:** Setup displays the port selection screen.

42 Click the radio button for Selected ports, click COM1, then click Next.

**Result:** The Location Information screen appears.

43 Select the customer's country, area code, and dialing option, then click Next.

**Result:** Setup displays the message `Your modem has been setup successfully`.

**Note:** The information you enter at this step can be changed later by double-clicking the Modems icon in the Control Panel, selecting this modem, and then clicking Properties.

44 Click Finish to complete the modem installation.

**Result:** Setup displays the Add RAS Device screen.

45 Click OK to close the Add RAS Device screen.

**Result:** Setup displays the Remote Access Setup screen.

46 Click Configure... .

**Result:** Setup displays the Configure Port Usage screen.

47 Select the Receive Calls Only radio button, then click OK.

**Result:** Setup redisplays the Remote Access Setup screen.

48 Click Network... .

**Result:** The Network configuration screen appears.

49 Ensure that the component check boxes are selected as follows:

Allow remote clients running:

- NetBEUI: Unchecked
- TCP/IP: Checked
- IPX: Unchecked

Encryption settings:

- Require Microsoft encrypted authentication: Checked
- Require data encryption: Unchecked
- Enable multi-link: Unchecked

50 Click OK to display the RAS Server TCP/IP Configuration dialog box.

51 On the dialog box, make the following selections:

**a.** Under Allow remote TCP/IP clients to access, select This computer only.

**b.** Select Use static address pool.

**Note:** For the next two selections, if installing at a customer site, the customer must provide these addresses.

**c.** Enter Begin and End addresses (for example, 192.168.0.40 and 192.168.0.254)

**d.** Enter From and To addresses, and enter excluded ranges, if any.

**e.** Uncheck Allow remote clients to request a predetermined IP address.

52 Click OK to redisplay the Remote Access Setup screen.

**53** Click Continue.

**Result:** Files are copied to the system. Setup displays the Microsoft TCP/IP Properties window and prompts you to enter the TCP/IP parameters.

**54** Enter the values provided by the customer's Network Administrator for

- IP Address (for example, 1.1.1.1)
- Subnet Mask (for example, 255.255.255.0)
- Default Gateway
- Primary WINS Server

**55** Click OK.

**Result:** You are returned to the Windows NT Server Setup screen showing bindings.

**56** Click Next to accept the defaults of the binding order of network services. Binding order is optimized later in the installation.

**Result:** Setup indicates that Windows NT will start the network.

**57** Click Next to display the message that Windows NT Setup will start the network, and click Next again.

**Result:** Windows NT Setup starts the network, and prompts you to enter Domain/Workgroup settings.

**ATTENTION**

This dialog box configures the Domain/Workgroup settings for the CallPilot server.

**58** Enter the Domain/Workgroup information.

**Note:** The customer's network administrator supplies the name of the workgroup.

**ATTENTION**

The computer must *not* belong to a Windows NT domain.

**59** Click Next to add the computer to the workgroup.

**Result:** Windows NT prepares to complete the setup.

60 Click Finish to proceed.

**Result:** You are prompted for Date / Time configuration settings.

61 Enter the correct date and time, and select the time zone. Check the check box to Automatically adjust clock for daylight saving changes.

62 Click Close.

**Result:** Windows NT Setup detects the installed display adapter.

63 Click OK to accept the display adapter Windows NT has detected.

**Result:** Setup prompts you to configure the display adapter.

64 Ensure that you select the following values:

- Color Palette: 16 Colors
- Desktop Area: 640x480
- Font Size: Small Fonts
- Refresh Frequency: Use default hardware settings

**Note:** You must test these settings before Windows NT Setup allows you to proceed.

65 Click Test to start the test.

**Result:** Setup prompts you to continue with the test.

66 Click OK to proceed with the display settings test.

**Result:** A test screen appears. After five seconds, Setup prompts you to respond whether you saw the bitmap properly.

67 Click Yes.

**Result:** Setup prompts you to save the display settings.

68 Click OK to save the display settings and continue.

**Result:** You are returned to the display settings configuration screen.

69 Click OK to finalize the display settings and continue with Windows NT setup.

**Result:** Files are copied to the system. Windows NT Setup sets security on system files, and saves the system configuration. You are then prompted to insert a blank disk into the floppy drive in order to create an emergency repair disk.

**70** Insert a blank disk and click OK.

**Result:** The disk is formatted and the configuration files are copied to the disk.

**71** Remove the CD from the CD-ROM drive, and the disk from the floppy disk drive.

**72** Click Restart Computer to complete Setup.

**Result:** Windows NT Setup restarts the server and boots to Windows NT.

## What's next

Now that the basic setup of Windows NT Server 4.0 is complete, you are ready to format additional hard disks/partitions.

# Formatting additional hard disks/partitions

## Introduction

Perform this procedure if you have more than one hard disk installed on your server. This general procedure can be applied to all unformatted disks.

## Requirements

- a server powered up, with MS-DOS and Windows NT 4.0 Server installed. The server must be powered up and display the Windows NT logon prompt.

## To format additional hard disks

1 At the logon prompt, press Ctrl + Alt + Delete.

**Result:** The Windows NT logon box appears.

2 Log on to Windows NT.

3 Click Start > Programs > Administrative Tools (Common) > Disk Administrator.

**Result:** Disk Administrator notifies you that this is the first time it has been run.

4 Click OK to acknowledge the message.

**Result:** The Disk Administrator program might prompt you to accept that it will write a signature to each hard disk.

5 Click Yes to each request.

**Result:** Disk Administrator writes a signature to all disks, and then displays the main program screen.

Each SCSI disk (or RAID System Pack) is represented on this screen. Each disk has a number (Disk 0, Disk 1, and so on). Note that Disk 0 has 1 partition: a 600-Mbyte FAT partition for 4-Gbyte hard disks, or a 1-Gbyte FAT partition for 9-Gbyte hard disks. The remainder of Disk 0 is free space.

6 Select the CD-ROM by pointing and clicking.

**Result:** Disk Administrator highlights the CD-ROM with a thick, black border.

7 Under the Tools menu, choose Assign Drive Letter... .

**Result:** An Assign Drive Letter window appears.

8 Ensure Assign Drive Letter is selected and, using the drop-down box, change the CD-ROM drive letter from D: to Z:. Click OK.

**Result:** Setup prompts you to confirm your changes.

9 Click Yes to confirm.

10 Select the free space on Disk 0 by pointing and clicking.

**Result:** Disk Administrator highlights the free space with a thick, black border.

11 Under the Partition menu, choose Create Extended... .

**Result:** You are prompted for the size of the Extended partition.

12 Accept or enter the maximum size of the partition (the remainder of free space for the 4-Gbyte hard disk, or 4096 Mbytes for the 9-Gbyte hard disk), and click OK.

**Result:** The extended partition is created.

13 Click and select the free space on Disk 0.

**Result:** The free space is highlighted with a thick, black border.

14 Under the Partition menu, choose Create... .

**Result:** You are prompted for the size of the logical drive.

15 Accept (or enter) the maximum size for the logical drive, and click OK.

**Result:** The logical drive is created.

16 Under the Partition menu, choose Commit Changes Now... .

**Result:** Setup prompts you to confirm your changes.

17 Click Yes to commit the changes to disk.

**Result:** Setup prompts you to update your Emergency Repair Disk.

18 Click OK to continue.

**Result:** You are returned to the Disk Administrator program screen.

19 Select the newly created partition and, under the Tools menu, choose Format... .

**Result:** Setup prompts you to enter the formatting information.

20 Ensure the File system is NTFS, and check the box labeled Quick Format. Click Start to continue.

**Result:** Setup prompts you to confirm the format.

21 Click Yes to proceed with the format.

**Result:** Windows NT formats the disk/partition. A message box appears when the format is complete with the format summary information.

22 Click Close after viewing the disk format summary information.

**Result:** You are returned to the Disk Administrator program screen.

23 Repeat steps 6 to 18 to format the remaining disks (or system packs) in the server.

24 After partitioning all the disks, choose Exit under the Partition menu.

## What's next

Install the Windows NT Service Pack 5.

# Installing WinNT 4.0 Service Pack 5

## Introduction

A service pack is an update Microsoft provides for Windows operating systems. Service packs provide new versions of files and fixes for problems that have been reported.

The current service pack is Service Pack 5.

**CAUTION**

**Risk of system crash**

Install the service pack only during the operating system installation and as part of an upgrade from a 1.0 CallPilot system. Do not reapply the service pack on an installed CallPilot system, except where specifically instructed to do so in the documentation.

## Requirements

- CallPilot 1.07 PEP CD-ROM
- a server powered up, with Windows NT 4.0 Server installed

## To install the service pack

1. Insert the 1.07 PEP CD in the CD-ROM drive.
2. Click Start > Programs > Windows NT Explorer.
3. Click the plus sign (+) next to the CD-ROM drive to display its subdirectories.
4. Select the directory named Service Pack 5.
5. Double-click the folder US-40bit and then double-click the file sp5i386.

   **Result:** The Service Pack Install window appears.

   a. Review the license agreement, and then select the Accept the License Agreement check box.

**b.** Uncheck the Backup files necessary to uninstall this Service Pack check box.

**c.** Click Install.

6 Click Finish to finish installing the service pack.

**Result:** The program examines the system, selects the files to copy, and then copies them. If messages appear, refer to the next step for the action to take in response.

7 As the files are installed, the following message might appear: `The target file exists and is newer than the source. Overwrite the newer file?` Click No.

When asked if you want to replace a file, always click No.

**Result:** The service pack is installed.

8 Click Restart.

**Result:** The computer restarts.

9 After the server is restarted, remove the CallPilot PEP CD.

## What's next

If this is a new installation, install the tape device drivers.

If you installed Service Pack 5 as part of a CallPilot upgrade, continue with "Upgrading from 1.0 or 1.06 to 1.07" on page 385.

# Installing the tape device drivers

## Introduction

Perform this procedure after installing the Windows NT Server and Service Pack 5.

## Requirements

- a server powered up, with MS-DOS and Windows NT 4.0 Server installed
- Application Server Driver CD
- a blank disk

## Before you begin

The tape device drivers that you need to install are provided on the Application Server Driver CD. For the drivers to be functional, you must copy the drivers to disk before starting the installation.

It is important to review the help.txt file that is supplied on the Application Server CD for the directory location of the drivers on the CD.

## To copy the drivers to disk

1. Ensure that all system and hidden files are displayed by clicking on the My Computer icon, selecting View from the menu bar, and then selecting Options.. .
2. In the View tab, select Show all files.
3. Click OK.
4. Insert the Application Server Driver CD into the CD-ROM drive.
5. Insert a blank disk into the floppy drive.
6. Use Windows Explorer to navigate to the directory on the CD-ROM containing the drivers you require. Highlight the contents of the directory.

   **Note:** The directory information is provided in the help.txt file on the Application Server CD.

7 Right-click the highlighted contents and select Send To.. 3 1/2 Floppy (A).

**Result:** Driver files are copied onto disk and are ready for use.

## To install the tape device driver

1 At the logon prompt, press Ctrl + Alt + Delete to display the Windows NT logon box.

2 Log on to the system using the customer's Administrator ID and password. Click OK.

3 Click Start > Settings > Control Panel, and double-click the Tape Devices icon.

**Result:** On the Tape Devices control panel, Windows NT attempts to detect the installed tape drive(s). The list of available tape drives appears.

4 If the tape driver is not listed, click Have disk... .

5 When prompted, insert the driver disk you created in "Before you begin" on page 300, into the floppy drive and click OK. Enter the drive letter (for example: A:).

**Result:** You are prompted to select a device driver from the displayed list.

6 Select Seagate tandquic (Tandberg Tape QIC SCSI drives, all), and click OK.

**Result:** You are prompted to install the selected driver.

7 Type OK to install the selected driver.

**Result:** The driver files are copied to the system and you are prompted to restart the computer. Remove the floppy drive before restarting the computer.

8 When prompted, insert the MAS 2.0 Operating System CD-ROM and click OK.

**Result:** The files are copied to the system, and the Tape Devices control panel appears.

9 Click OK to close the control panel and save the changes.

## What's next

Install video card device drivers if required.

# Installing video card device drivers

## Introduction

Install the video drivers after Service Pack 5 has been applied to the system and you install pcANYWHERE32.

**Note:** Currently, Windows NT 4.0 Service Pack 5 uses the default video card device drivers that are supplied with Windows NT 4.0. Follow this procedure only if a new video device driver has been issued by Microsoft.

## Requirements

- a server powered up, with Windows NT 4.0 and Service Pack 5 installed
- Application Server Driver CD
- a blank disk

## Before you begin

The video card device drivers that you need to install are provided on the Application Server Driver CD. For the drivers to be functional, you must copy the drivers to disk before starting the installation.

It is important to review the help.txt file that is supplied on the Application Server CD for the directory location of the drivers on the CD.

## To copy the drivers to disk

1. Ensure that all system and hidden files are displayed by clicking on the My Computer icon, selecting View from the menu bar, and then selecting Options.. .
2. In the View tab, select Show all files.
3. Click OK.
4. Insert the Application Server Driver CD into the CD-ROM drive.
5. Insert a blank disk into the floppy drive.

6 Use Windows Explorer to navigate to the directory on the CD-ROM containing the drivers you require. Highlight the contents of the directory.

**Note:** The directory information is provided in the help.txt file on the Application Server CD.

7 Right-click the highlighted contents and select Send To.. 3 1/2 Floppy (A).

**Result:** Driver files are copied onto disk and are ready for use.

## To install the video card device driver

1 Press Ctrl + Alt + Delete.

**Result:** The Windows NT logon box appears.

2 Log on to Windows NT as Administrator.

3 Click Start > Settings > Control Panel.

4 Double-click the Display icon, then click Settings.

5 Click Display Type, then click Change.

6 Select the appropriate device driver for the installed video card and click OK to continue.

**Result:** You are prompted to install the selected driver. If this is the correct driver, skip to Step 8.

If the video card driver is not listed, insert the driver disk you created in "Before you begin" on page 302 and click Have Disk... .

**Result:** You are prompted to insert the disk.

7 Insert the Video card device driver disk in the floppy drive, enter the drive letter (for example, a:\), and click OK.

**Result:** You are prompted to select a device driver from the displayed list.

8 Select the most appropriate driver and click OK to continue.

**Result:** You are prompted to install the selected driver.

9 Click OK to install the selected driver.

**Result:** You are prompted to insert the MAS 2.0 Operating System CD.

10 Insert the MAS 2.0 Operating System CD in the CD-ROM drive, and click OK.

**Result:** The driver files are copied to the system. The Display Type control panel appears.

11 Click OK to close the control panel and save the changes.

**Result:** You are returned to the Windows NT Control Panel.

## What's next

Install the RAID Monitoring/Administration utility.

# Install RAID Monitoring/Administration utility

## Introduction

If a PCI RAID card was installed, install the monitoring and administration utilities for the RAID card under Windows NT.

## Installing the RAID utility

1. Insert the DAC960 driver disk in the floppy drive.
2. Click Start > Programs > Command Prompt.
3. Type the following commands to complete the RAID card configuration.

   **Note:** Note the path Windows NT 4.00 (c:\winnt\). Make the appropriate changes as you execute the steps below:

   copy a:\nt*.* c:\winnt\system32\

   **Result:** The system displays the following message: `7 files(s) copied`

   srvccfg dacmon dac960Monitor c:\winnt\system32\dacmon.exe

   **Result:** The system displays the following message: `Service Installed successfully`

   net start dacmon

   **Result:** The system displays the following message: `The dac960Monitor service is starting. The dac960Monitor service was started successfully.`
4. After the execution of the last command, a window is launched minimized in the TaskBar (NT 4.0).
5. Close the Command Prompt window and remove the floppy disk.

## What's next

Install pcANYWHERE.

# Installing pcANYWHERE32

## Introduction

The process of installing pcANYWHERE32 involves the following procedures:

1. Install the pcANYWHERE32 application on the server.
2. Start pcANYWHERE32 for the first time. This procedure allows you to set the network device.
3. Set the video mode. This procedure synchronizes the video card settings with that of the administration client PC to ensure the remote user can see the server graphical user interfaces properly.
4. Set the pcANYWHERE32 service to Automatic. This procedure enables the pcANYWHERE32 service to start automatically after reboot.

## To install pcANYWHERE on the server

1 Log on as administrator.

2 Insert the MAS 2.0 Operating System CD into the CD-ROM drive.

3 Ensure all other Windows applications are closed.

4 Navigate to the Installs\Pca32\Disk1 folder on the CD-ROM drive as follows:

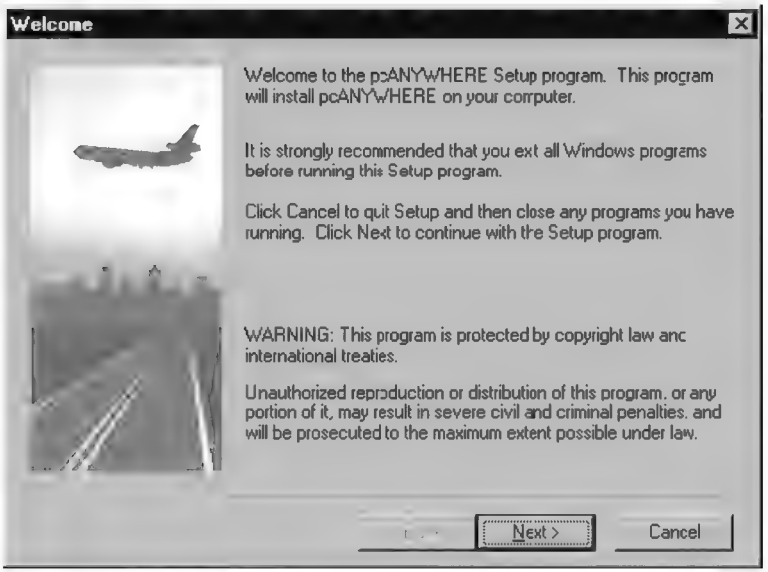
   **a.** Double-click Installs.

   **b.** Double-click Pca32.

   **c.** Double-click Disk1.

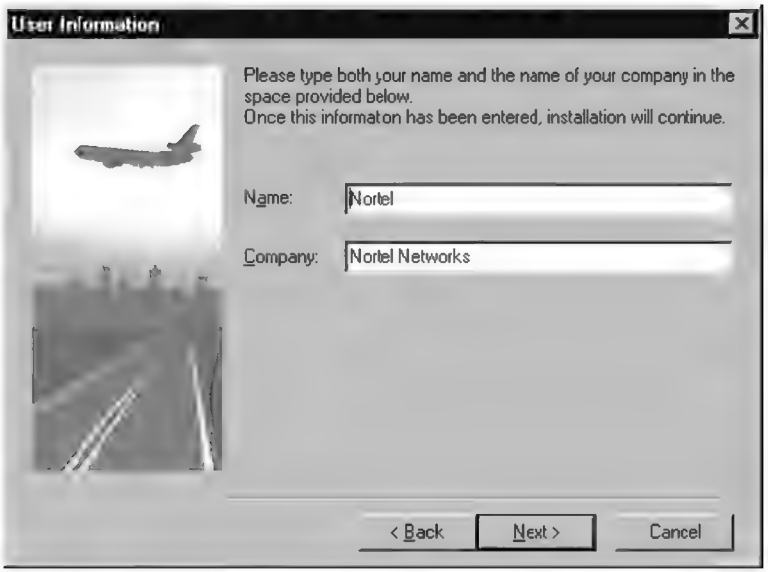
**d.** Locate and double-click the Setup application file.

**Result:** The Welcome to pcANYWHERE setup program window appears.


Welcome
Welcome to the pcANYWHERE Setup program. This program will install pcANYWHERE on your computer.
It is strongly recommended that you ext all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law anc international treaties.
Unauthorized reproduction or distribution of this program. or any portion of it, may result in severe civil and criminal penalties. and will be prosecuted to the maximum extent possible under law.
Next >
Cancel

5 Click Next to start the installation.

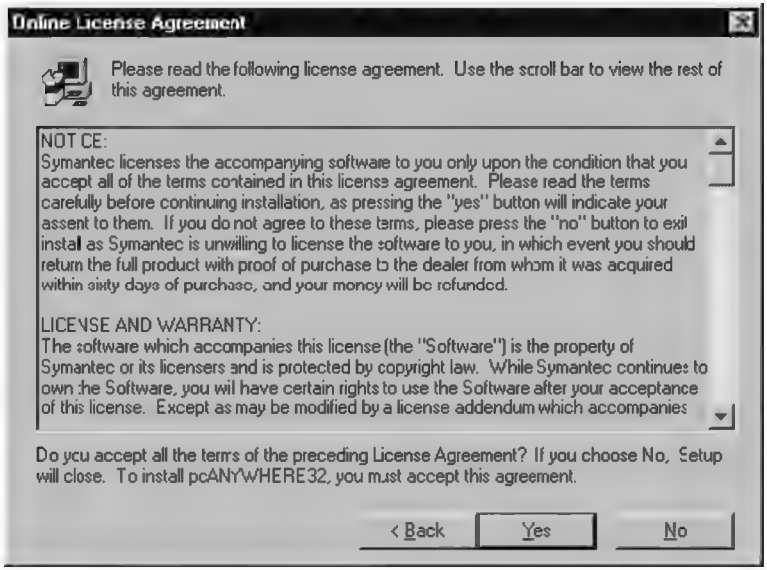
**Result:** The User Information window appears.


User Information
Please type both your name and the name of your company in the space provided below.
Once this information has been entered, installation will continue.
Name:
Nortel
Company:
Nortel Networks
< Back
Next >
Cancel

6 Enter the user name and company name, then click Next.

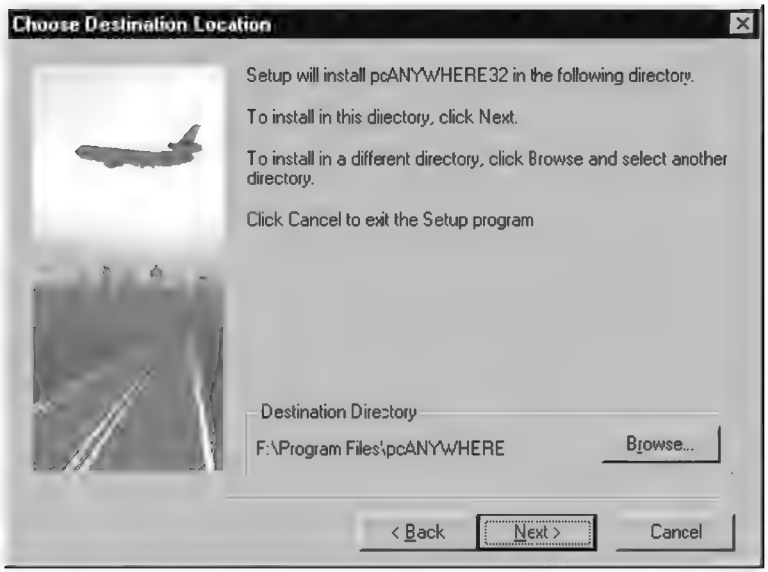
**Note:** Ensure that the name and company are the same as those entered during the Windows NT installation.

**Result:** The Online License Agreement window appears.


Online License Agreement
Please read the following license agreement. Use the scroll bar to view the rest of this agreement.
NOTICE:
Symantec licenses the accompanying software to you only upon the condition that you accept all of the terms contained in this license agreement. Please read the terms carefully before continuing installation, as pressing the "yes" button will indicate your assent to them. If you do not agree to these terms, please press the "no" button to exit install as Symantec is unwilling to license the software to you, in which event you should return the full product with proof of purchase to the dealer from whom it was acquired within sixty days of purchase, and your money will be refunded.
LICENSE AND WARRANTY:
The software which accompanies this license (the "Software") is the property of Symantec or its licensers and is protected by copyright law. While Symantec continues to own the Software, you will have certain rights to use the Software after your acceptance of this license. Except as may be modified by a license addendum which accompanies
Do you accept all the terms of the preceding License Agreement? If you choose No, Setup will close. To install pcANYWHERE32, you must accept this agreement.
< Back
Yes
No

7 Click Yes to accept the software license agreement.

**Result:** The Choose Destination Location window appears.


Choose Destination Location
Setup will install pcANYWHERE32 in the following directory.
To install in this directory, click Next.
To install in a different directory, click Browse and select another directory.
Click Cancel to exit the Setup program
Destination Directory
F:\Program Files\pcANYWHERE
Browse...
< Back
Next >
Cancel

8 Click Next to accept the default directory.

**Result:** The Setup Review screen appears.

Setup Review
pcANYWHERE Setup will now automatically:
1) Update the Windows Registry
2) Create a program group
3) Copy files
The pcANYWHERE program will be copied to the following location:
F:\Program Files\pcANYWHERE
< Back
Next >
Cancel

9 Click Next to continue.

**Result:** Program and other files are copied to the system.

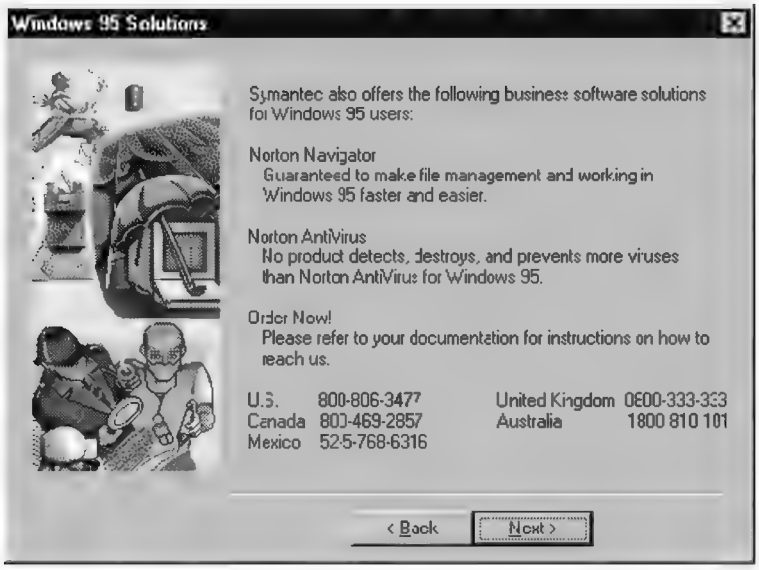
When installation is complete, the Symantec Support Solutions screen appears.

Symantec Support Solutions
StandardCare Support
Unlimited use of electronic and automated services and limitec time telephone technical suppot at no charge.
ProrityCare Support
Fast access support designed for occasional callers (charged on a per minute basis).
PremiumCare Support
Fast access, cost-effective support for frequent callers (charged on a per-year basis).
See your product manual for details about support programs designed to help you get the most out of your software.
Services available may vary by country. Symantec reserves the right to change its support policies at any time.
Next >

**10** Click Next to display the How To Reach Us screen.

**11** Click Next to continue.

**Result:** The Windows 95 Solutions screen appears.


Windows 95 Solutions
Symantec also offers the following business software solutions for Windows 95 users:
Norton Navigator
Guaranteed to make file management and working in Windows 95 faster and easier.
Norton AntiVirus
No product detects, destroys, and prevents more viruses than Norton AntiVirus for Windows 95.
Order Now!
Please refer to your documentation for instructions on how to reach us.
U.S. 800-806-3477
Canada 800-469-2857
Mexico 525-768-6316
United Kingdom 0800-333-333
Australia 1800 810 101
< Back
Next >

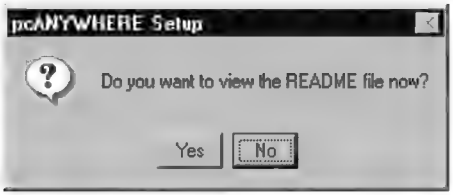
**12** Click Next to continue.

**Result:** The Registration Wizard screen appears.

Registration Wizard
Please take a moment to register now
Register now to be eligible for 90 days of free technical support, special upgrade pricing, and up-to-date product and company information.
To register, select the location nearest you from the list below. To continue without registering, click Skip.
Select location:
Canada
Click Next to continue registering.
SYMANTEC.
Next >
Skip

**13** Click Skip.

**Result:** You are asked if you want to view the README file now.



**14** Click No.

**Result:** Setup prompts you to restart the computer.

Setup Complete
Congratulations!!!
pcANYWHERE32 for Windows 95 and Windows NT has been successfully installed on your computer.
Windows must be restarted before pcANYWHERE is run and before installing any other applications.
Yes, I want to restart my computer now
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
Finish

**15** Click No, I will restart my computer later, and then click Finish.

**Result:** pcANYWHERE32 setup terminates.

## To start pcANYWHERE32 for the first time

1 Click Start > Programs > pcANYWHERE32 > pcANYWHERE.

**Result:** The Smart Setup Wizard window appears, and you are prompted for the modem device.

Smart Setup Wizard
Please select the modem device to be used as the default for modem connections.
If you want to add a modem not listed here, click the "Add Modem" button.
Modem:
Sportster 2880C-33600 External
Add Modem
Next >
Cancel

2 Ensure that the Sportster 28800-33600 External modem is selected, then click Next.

**Result:** The system prompts you to select the network device.

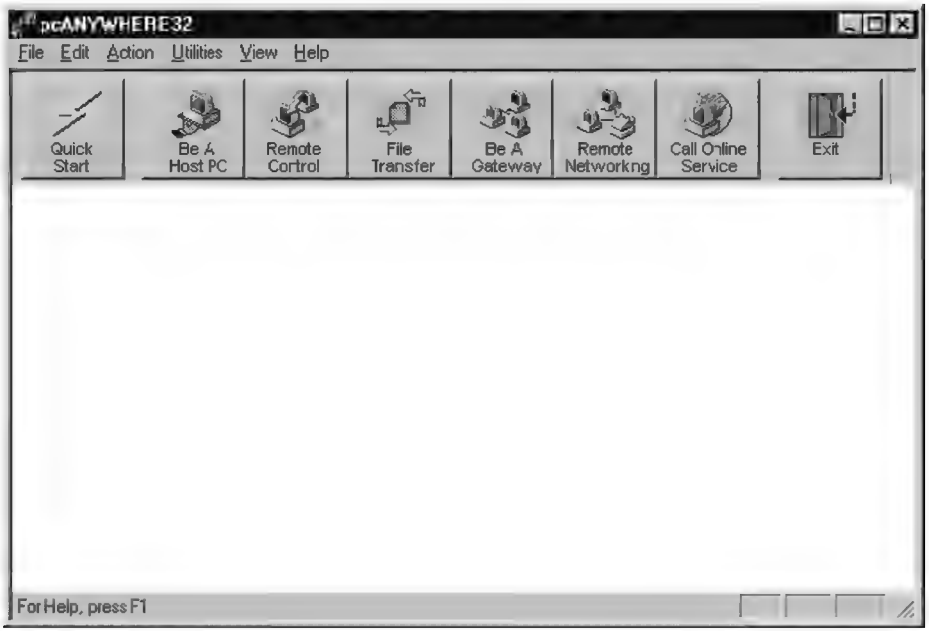
Smart Setup Wizard
Please select the network device to be used as the default for network connections.
TCP/IP
*If you do not have a network, or you do not know what your network type is, you can select one later.
< Back
Next >
Cancel

3 Ensure that only TCP/IP is selected, and then click Next.

**Result:** The system prompts you to select a port.

4 Ensure that you select COM1, then click Finish.

**Result:** The pcANYWHERE32 window appears.

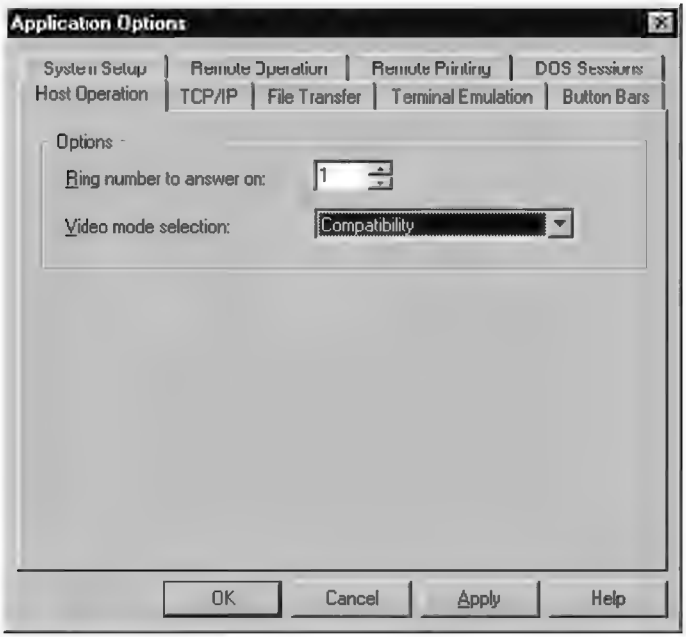



## To set the video mode

1 From the File menu, select Application Options.

**Result:** The Application Options dialog box appears.

2 Click the Host Operation tab.




3 In the Video mode selection drop-down list, select Default—Accelerator Enabled, and then click Apply.

4 Click OK to close the window.

**Result:** The pcANYWHERE32 window appears.

5 To finish the installation, on the pcANYWHERE32 window, click File > Exit.

6 If you performed the installation from the CD-ROM drive, remove the CD from the drive.

## To perform the pcANYWHERE32 patch installation

**Note:** The pcANYWHERE32 patches are located on the CallPilot server CD in the following directory: platform\default\nortel\data\PCANYW_1

1 Install the 802up_a Patch. From the CallPilot server CD, run platform\default\nortel\data\PCANYW_1\802up_a\disk1\setup.exe.

2 Double-click the setup.exe icon.

**Result:** The Welcome window appears.

3 Click Next.

**Result:** The Start Copying Files window shows the path for copying files.

4 Click Next.

**Result:** Setup copies files to the directories, and then the Setup complete window appears.

5 Select No, I will restart my computer later, and then click Finish.

**Note:** Do not restart the computer.

6 Install the 802up_b Patch. The setup executable can be found on the CallPilot server CD in the following directory: platform\default\nortel\data\PCANYW_1\802up_b\setup.exe.

7 Double-click setup.exe.

**Result:** The Welcome window appears.

8 Click Next.

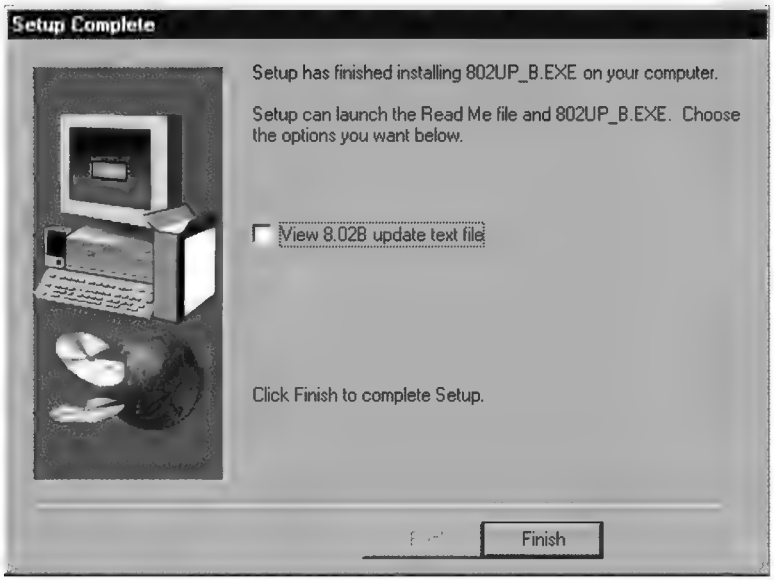
**Result:** The Start Copying Files window appears, showing the path for copying files.

9 Click Next.

**Result:** Setup copies files to the directories, and then the Setup Complete window appears.

10 Select No, I will restart my computer later.

11 If you see the following screen, ensure the check box is unchecked, and then click Finish.


Setup Complete
Setup has finished installing 802UP_B.EXE on your computer.
Setup can launch the Read Me file and 802UP_B.EXE. Choose the options you want below.
View 8.02B update text file
Click Finish to complete Setup.
Finish

12 Restart the computer by clicking Start > Shutdown. Select Restart the Computer, and then click OK.

## To configure pcANYWHERE

1 Click Start > Programs > pcANYWHERE32 > PCAnywhere.

2 Select Be a Host PC.

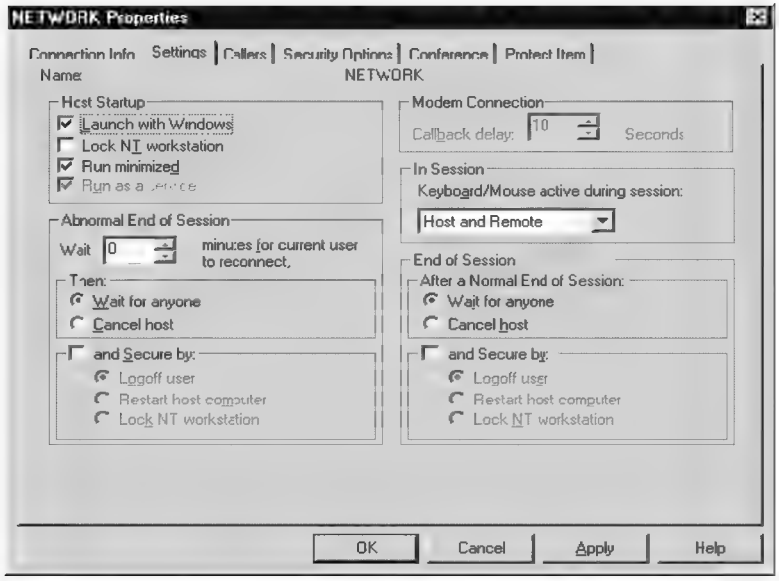
3 Right-click the Network icon, and then click Properties.

**Result:** The Network Properties sheet appears.

4 Click the Connection Info tab.

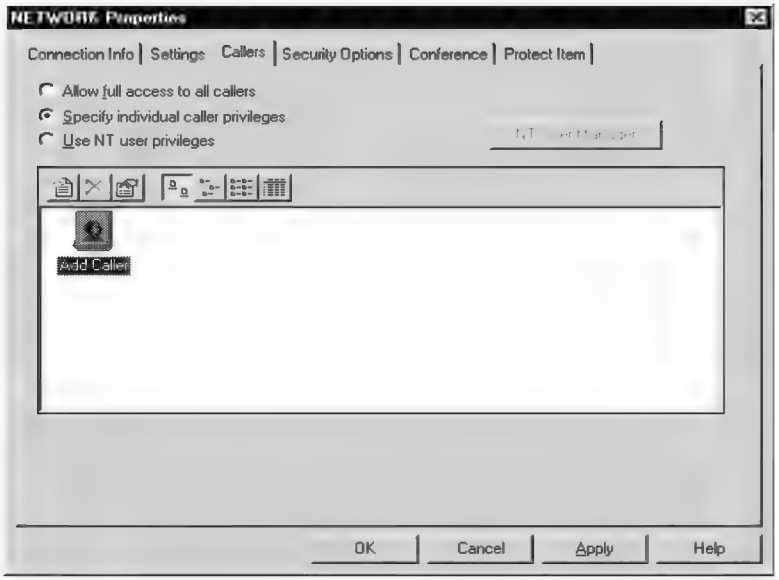
5 Ensure that only TCP/IP is checked.

6 Click the Settings tab and select the Launch with Window check box. Ensure that the settings are as shown in the following example:




7 Click the Callers tab.

8 Click Specify individual caller privileges, as in the following example:




9 Double-click Add Caller.

**Result:** The New Caller Wizard window appears.

10 Enter CallPilotDist and click Next.

11 Type CallPilotDist for the logon name.

12 In the Password field, type the new CallPilotDist password.

13 In the Confirm Password field, retype the new CallPilotDist password.

14 Click Next.

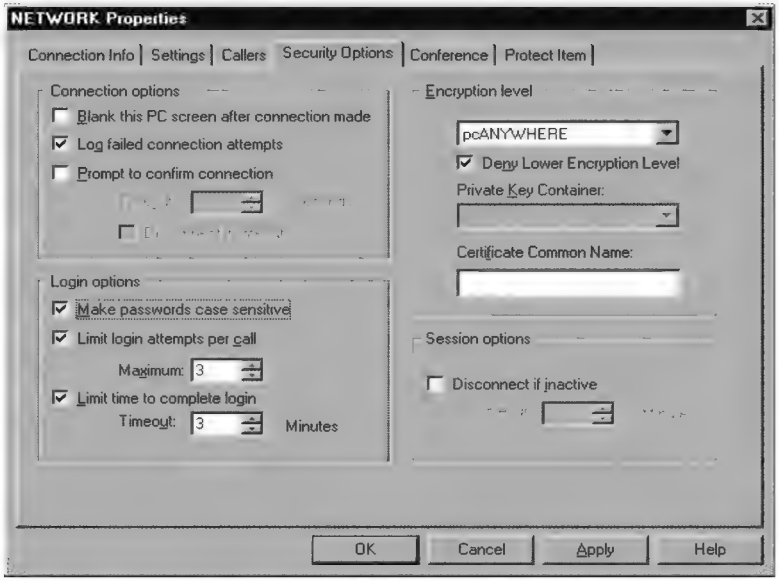
15 Click Finish.

**Result:** The Network Properties sheet appears.

16 Click the Security Options tab and select the check boxes for the following entries:

- Log failed connection attempts
- Make passwords case-sensitive
- Deny lower encryption level

17 Ensure that the settings are as shown in the following example:




18 If you want to assign a password to control who can modify the Network icon settings, click the Protect Item tab, then enter a password on this screen.

19 Click OK to apply all pcANYWHERE32 settings.

## What's next

If necessary, make an emergency repair disk. Otherwise, refer to Chapter 8, "Installing CallPilot server software," to install the CallPilot server software.

# Making an emergency repair disk

## Introduction

An emergency repair disk enables you to start the server in the event that Windows NT on the server does not start.

**ATTENTION**

An emergency repair disk should only be used by support personnel or as requested by support personnel.

It is important that the emergency repair disk be updated on a regular basis (after any maintenance activities are performed on the server or anytime the server configuration changes).

## Requirements

- a blank 3.5 inch disk (not supplied with CallPilot). Label this disk "Emergency Repair Disk."
- a server with Windows NT 4.0 and the service pack installed (see "To install the service pack" on page 298)

## To make an emergency repair disk

1. Power up the server.
2. Press Ctrl + Alt + Delete to display the logon window.
3. Log on to Windows NT as Administrator.
4. Insert the blank disk in the floppy drive.
5. Click Start, and then click Run.
6. When prompted, type **rdisk** and click OK.
7. Click Update Repair Info.

8 Click Yes to continue.

**Result:** Setup prompts you to create the Repair disk.

9 Click Yes.

10 Click OK at the prompt.

**Result:** The disk is formatted and configuration files are copied to the disk being created.

11 When complete, remove the disk from the floppy drive.

12 Click Exit on the Repair Disk Utility.

## What's next

Install the CallPilot server software.

# Chapter 8

# Installing CallPilot server software

## In this chapter


Section A: Installing the CallPilot server software (for all switch types) 329

Installing the CallPilot server software 330

Section B: Installing Performance Enhancement Packages (PEPs) 337

Installing PEPs 338

Section C: Installing switch connectivity software 347

Installing software for the Lucent, Mitel, and Rolm switch 348

Installing software for the MSL-100/DMS-100 switch 360

# Section A: Installing the CallPilot server software (for all switch types)

## In this section

Installing the CallPilot server software 330

# Installing the CallPilot server software

## Introduction

This section describes the steps required to install CallPilot software on a CallPilot server that is already loaded with the Windows NT 4.0 operating system and the device drivers required by CallPilot.

## Requirements

- CallPilot 1.07 Server CD
- CallPilot 1.07 PEP CD
- CallPilot 1.07 Language CD
- a server powered up, with Windows NT 4.0, Service Pack 5, and all the device drivers installed
- current password for the Administrator account (this password was set during the installation of Windows NT)

**ATTENTION**

During an installation, there are stages during which the setup program performs automatic installation steps between setup windows. Do not close or click on any windows that appear during these steps unless you are prompted. Wait for the next wizard setup window before you use the mouse or keyboard.

## Installation procedures

These procedures apply to all switch types.

### To select the platform type

This table provides information about each server that will assist you in selecting the platform type:

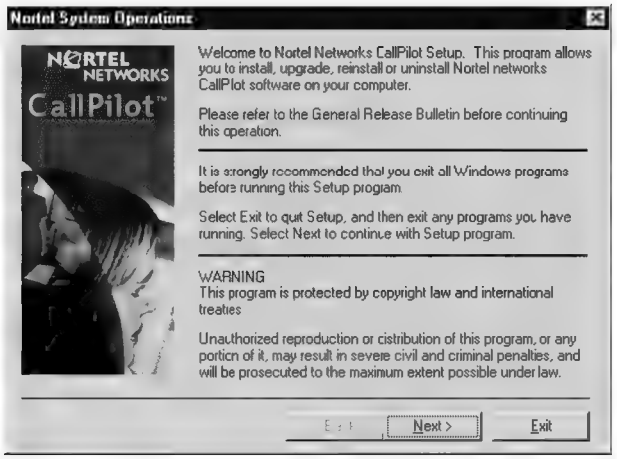
| Prompts | 200i | 702t | 1001rp |
|---|---|---|---|
| machine class | IPE | TRP | TRP |
| machine type | IPE | Tower | Rack |
| platform series | 200 | 702 | 1001 |
| backplane type | Active | Active | Passive |

## To install the CallPilot server software

1 Insert the CallPilot 1.07 Server CD into the CD-ROM drive and launch Windows NT Explorer.

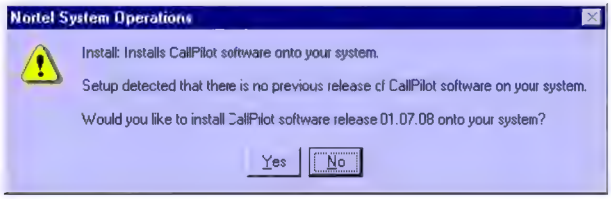
2 Click on the CD-ROM drive, and then double-click Setup to start the CallPilot installation.

**Result:** The Nortel System Operations window appears.


Nortel System Operations
NORTEL NETWORKS
CallPilot™
Welcome to Nortel Networks CallPilot Setup. This program allows you to install, upgrade, reinstall or uninstall Nortel networks CallPilot software on your computer.
Please refer to the General Release Bulletin before continuing this operation.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Select Exit to quit Setup, and then exit any programs you have running. Select Next to continue with Setup program.
WARNING
This program is protected by copyright law and international treaties
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Exit

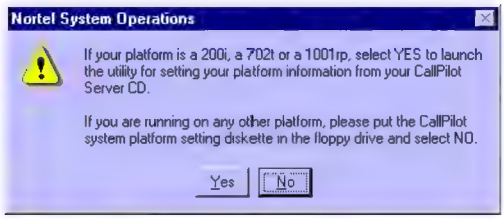
3 Click Next.

**Result:** You are asked to confirm the installation of CallPilot files onto your PC.


Nortel System Operations
Install: Installs CallPilot software onto your system.
Setup detected that there is no previous release of CallPilot software on your system.
Would you like to install CallPilot software release 01.07.08 onto your system?
Yes
No

4 Click Yes.

**Result:** You are prompted to start the platform setting procedure.

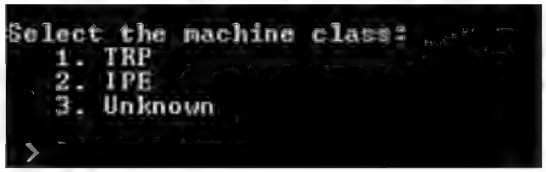

Nortel System Operations
If your platform is a 200i, a 702t or a 1001rp, select YES to launch the utility for setting your platform information from your CallPilot Server CD.
If you are running on any other platform, please put the CallPilot system platform setting diskette in the floppy drive and select NO.
Yes
No

5 If the server is a 200i, 702t, or a 1001rp, click Yes to perform the platform setup from CD.

**Result:** The Platform Type Information Test Application window appears.

6 Type **1** to set the platform type and press Enter.

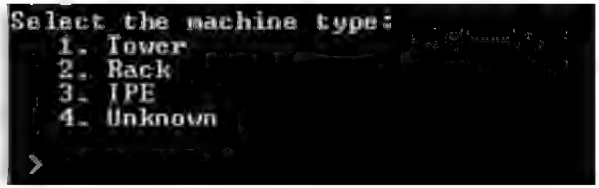
**Result:** The system prompts you to identify the machine class.




7 Type **1** for the 702t or the 1001rp.

Type **2** for the 200i.

**Result:** The system prompts you to identify the machine type.

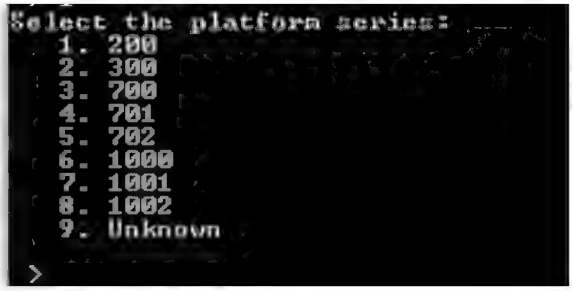



8 Type **1** for the 702t.

Type **2** for the 1001rp.

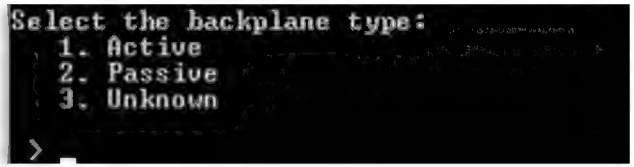
Type **3** for the 200i.

**Result:** The system prompts you to identify the platform series.



9 Type the number that identifies your server's model number. Press Enter.

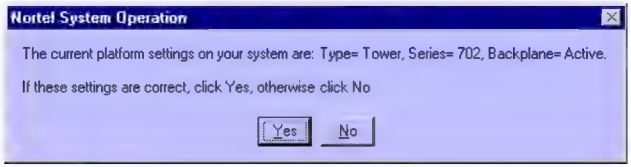
**Result:** The Select the backplane type prompt appears.




10 Type **1** for the 200i or the 702t.

Type **2** for the 1001rp.

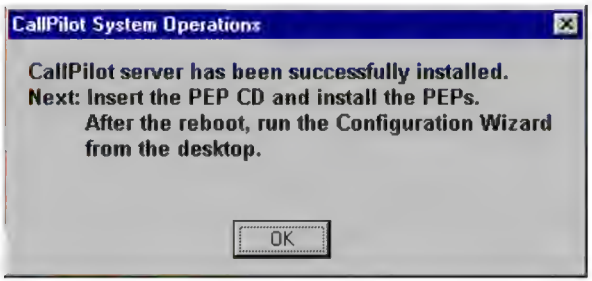
**Result:** The Nortel System Operations window appears.


Nortel System Operation
The current platform settings on your system are: Type= Tower, Series= 702, Backplane= Active.
If these settings are correct, click Yes, otherwise click No
Yes
No

11 If the settings are correct, click Yes to initiate the installation. Otherwise, click No to rerun the platform setting procedure.

12 The installation setup process runs automatically (taking 15 to 30 minutes). A series of messages appear to indicate the items that are being installed (for example, backup/restore, MMFS).

**Result:** When installation is complete, the following prompt window appears:


CallPilot System Operations
CallPilot server has been successfully installed.
Next: Insert the PEP CD and install the PEPs.
After the reboot, run the Configuration Wizard
from the desktop.
OK

13 Remove the Server CD and insert the CallPilot 1.07 PEP CD. Click OK.

## What's next

Install any required PEPs.

# Section B: Installing Performance Enhancement Packages (PEPs)

## In this section

Installing PEPs 338

# Installing PEPs

## Introduction

For an initial installation of CallPilot, the Performance Enhancement Packages (PEPs) are provided on a CD.

If you are using this procedure for a CallPilot system that is up and running, new PEPs are issued on the NIC web site:

http://www.nortelnetworks.com/prd/nic

You require a password to access this site.

**CAUTION**

**Risk of system problems**

For specific PEP installation instructions, refer to the readme files that are in the PEP CD root directory and in the folder for each PEP package. In many cases, PEPs must be uninstalled and installed in a specific order. The readme files provide these instructions. When the readme files instruct you to uninstall or install PEPs, refer to the procedures in this section.

**ATTENTION**

If your CallPilot system is up and running, Nortel Networks recommends that you perform a system backup before you install a new PEP.

See *Monitoring and Security for the Administrator* for more information on performing a backup.

## Identifying the PEPs

PEPs are labeled on the CD in the following format:

**NMxxyyzzPwwwQ**

where

| | |
|---|---|
| **xxyyzz** | is the release level (for example, 010707) |
| **P** | can be "R" for a restricted PEP, "D" for a diagnostic PEP, or "G" for a general PEP |
| **www** | PEP number for the release. Range is from 001 to 999 |
| **Q** | indicates platform type (for example, "S" denotes a PEP for the server) |

## Readme files

Readme files are provided in the following locations on the PEP CD:

- Root directory on the PEP CD

  This readme file provides a general description of the PEP packages and general PEP install and uninstall instructions.

- In each PEP package folder

  These readme files provide a list of all the PEPs in that package, and specific PEP install and uninstall instructions.

- In each PEP folder

  These readme files describe the purpose of that PEP and might provide some PEP installation instruction.

## To install a PEP package

1. Ensure that you are logged on to the server where you are going to begin PEP installation. Use a logon account that has administrative privileges (for example, administrator).
2. Insert the CallPilot 1.07 PEP CD.
3. Read the readme files that are in the PEP CD root directory and in the folder for each PEP package for specific uninstallation and installation instructions.

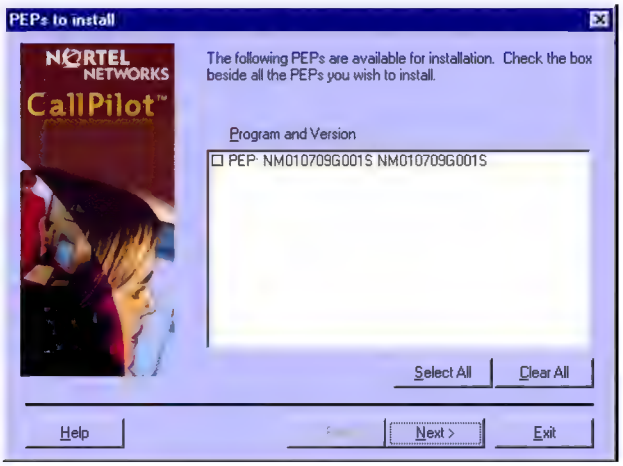
4 Double-click runme.exe.

**Result:** Setup examines the system, and the PEP's to install window appears.

**ATTENTION**

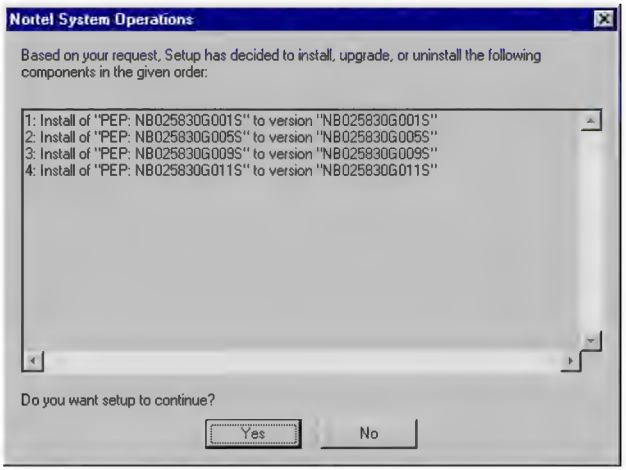
It can take 5 to 20 minutes for the PEPs to install window to appear, depending on the number of PEPs and the system configuration. In the meantime, a gray box might appear while the window is loading. Do not use the mouse or keyboard during this time

**Note:** The following example is for illustration purposes only, and might not reflect what appears on your system.



5 Select the PEPs to install, then click Next. If you are uncertain about which PEPs to install, refer to the Readme file located in the root directory of the CD.

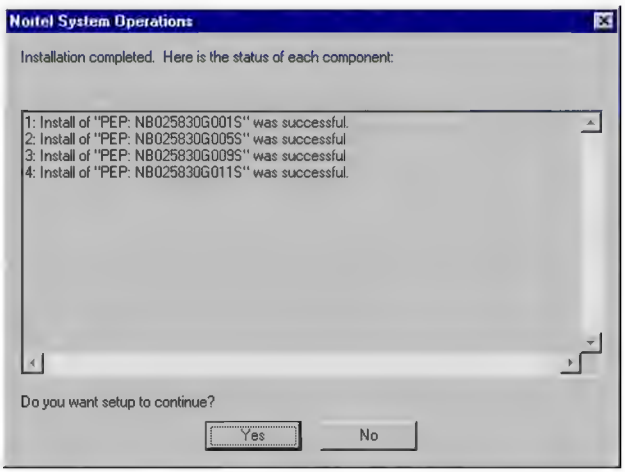
**Result:** The Nortel System Operations window appears and lists all components in the order in which they will be installed.


Nortel System Operations
Based on your request, Setup has decided to install, upgrade, or uninstall the following components in the given order:
1: Install of "PEP: NB025830G001S" to version "NB025830G001S"
2: Install of "PEP: NB025830G005S" to version "NB025830G005S"
3: Install of "PEP: NB025830G009S" to version "NB025830G009S"
4: Install of "PEP: NB025830G011S" to version "NB025830G011S"
Do you want setup to continue?
Yes
No

6 Click Yes to continue.

**Result:** The system automatically shuts down all services and the PEPs are installed. A summary of the installation appears, showing the success or failure of each PEP operation.

**Note:** CallPilot automatically removes obsolete PEPs when you install new PEPs.


Nortel System Operations
Installation completed. Here is the status of each component:
1: Install of "PEP: NB025830G001S" was successful.
2: Install of "PEP: NB025830G005S" was successful
3: Install of "PEP: NB025830G009S" was successful
4: Install of "PEP: NB025830G011S" was successful.
Do you want setup to continue?
Yes
No

7 Click Yes to complete the procedure.

**Result:** The program ends.

8 Repeat this procedure for other PEP packages. A reboot is required after installing PEPs.

## To uninstall a PEP package

CallPilot automatically removes obsolete PEPs when you install new PEPs. However, there can be times when you want to uninstall a PEP yourself.

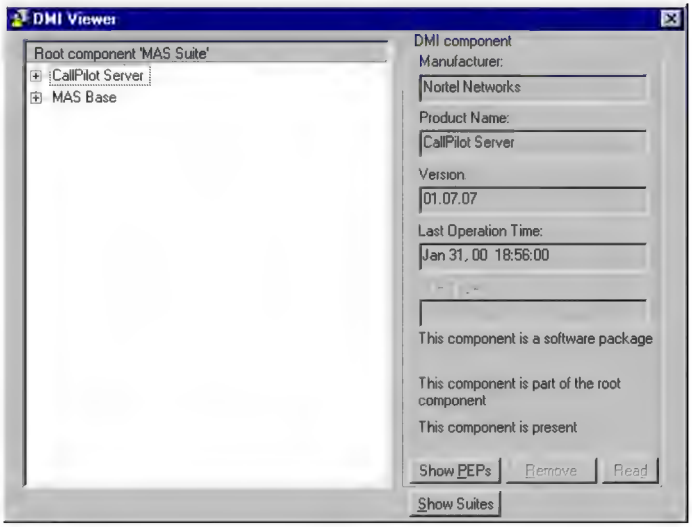
Use the DMI Viewer on the server to view or uninstall server PEPs. Access the DMI Viewer by clicking Start > Programs > CallPilot > System Utilities > PEP Maintenance Utility.

To uninstall PEPs on the server, follow these steps.

1 Log on to the server where you are going to begin the PEP uninstall. Use a logon account that has administrative privileges (for example, administrator).

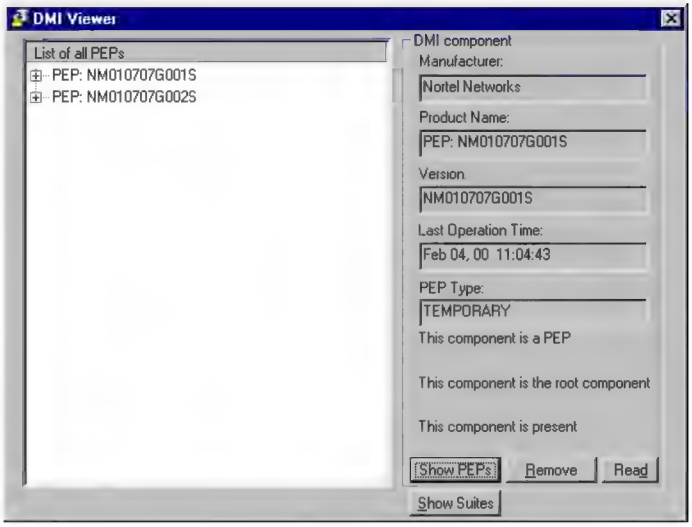
2 Open the PEP Maintenance utility.

**Result:** The DMI Viewer window appears. The following example might not reflect exactly what appears on your system.




3 To view a list of all PEPs, click Show PEPs.

**Result:** A list of all PEPs appears.




4 Select the PEP you want to uninstall. You can select multiple PEPs to uninstall in one operation by using the Ctrl key. The prefix PEP identifies PEPs.

5 Click Remove.

**Result:** The system prompts you to confirm this choice.

6 Click Yes.

**Result:** The system automatically shuts down all services and uninstalls the selected PEPs. When the uninstall is finished, the system automatically restarts all services.

**Note:** After you uninstall a PEP, the PEP is still visible in the list of components until you restart DMI Viewer.

7 When you are finished, close the DMI Viewer window.

## What's next

If you are installing software for recovery purposes, install switch connectivity software. Go to the section for your switch as shown in the table below.

| Switch | Refer to |
|---|---|
| Meridian 1 | Part 3, Chapter 6, "Configuring the server software—common dialog boxes for all switch types" |
| MSL-100 or DMS-100 | "Installing software for the MSL-100/ DMS-100 switch" on page 360 |
| Lucent, Mitel, or Rolm | "Installing software for the Lucent, Mitel, and Rolm switch" on page 348 |
| Matra | Part 3, Chapter 6, "Configuring the server software—common dialog boxes for all switch types" |

If you are upgrading CallPilot server software, return to the upgrade procedure described in "Upgrading from 1.0 or 1.06 to 1.07" on page 385.

# Section C: Installing switch connectivity software

## In this section

Installing software for the Lucent, Mitel, and Rolm switch 348
Installing software for the MSL-100/DMS-100 switch 360

# Installing software for the Lucent, Mitel, and Rolm switch

## Introduction

Follow these procedures to install and configure connectivity software for the Lucent, Mitel, and Rolm switches.

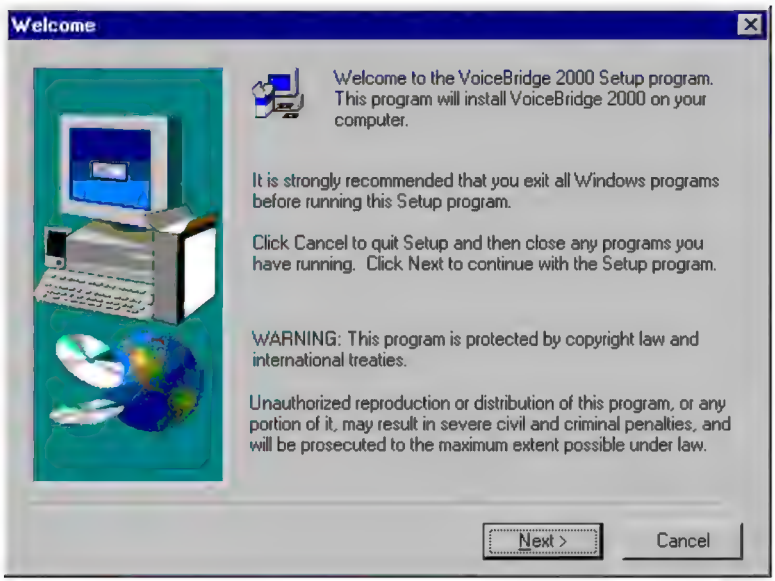
## To install VoiceBridge software

1 Insert the CallPilot 1.07 PEP CD into the CD-ROM drive and launch Windows NT Explorer.

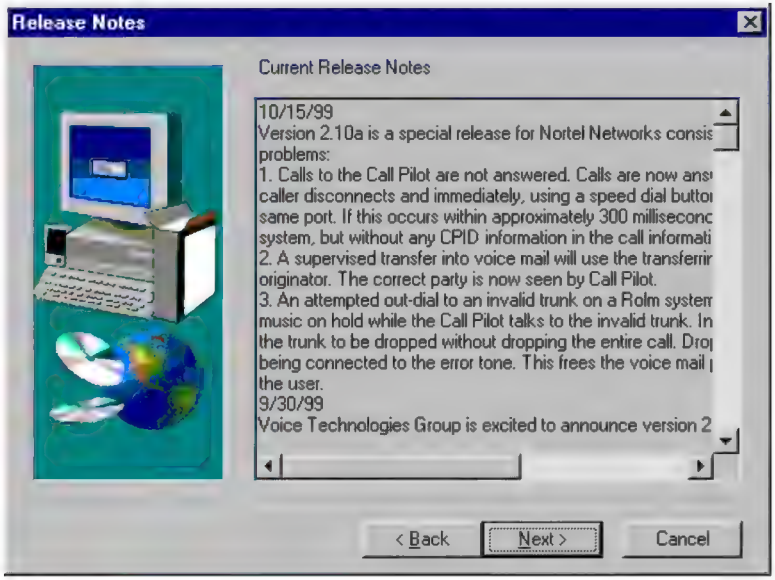
2 Click the CD-ROM drive and navigate to the vtg directory.

3 Double-click setup to start the installation.

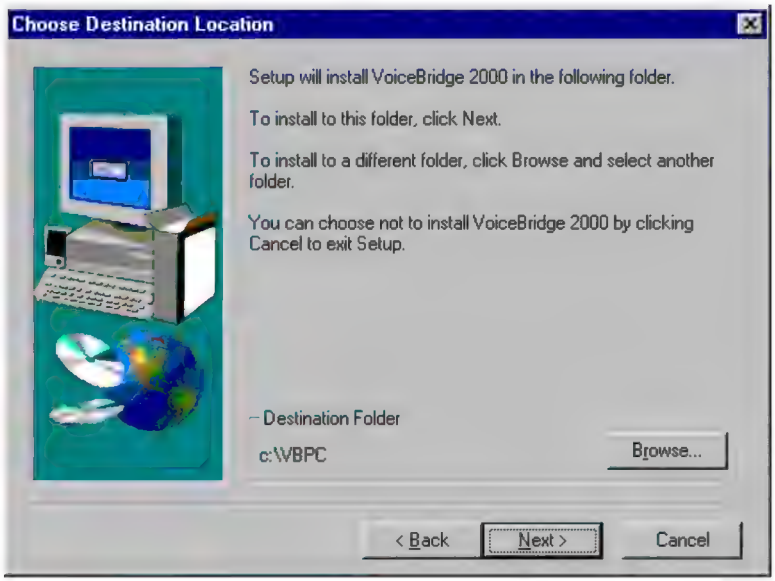
**Result:** The Welcome window appears.


Welcome
Welcome to the VoiceBridge 2000 Setup program. This program will install VoiceBridge 2000 on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel

4 Click Next to display the Release Notes window. Review these notes for the most current information on the release.


Release Notes
Current Release Notes
10/15/99
Version 2.10a is a special release for Nortel Networks consis
problems:
1. Calls to the Call Pilot are not answered. Calls are now ans
caller disconnects and immediately, using a speed dial butto
same port. If this occurs within approximately 300 milliseconc
system, but without any CPID information in the call informati
2. A supervised transfer into voice mail will use the transferrir
originator. The correct party is now seen by Call Pilot.
3. An attempted out-dial to an invalid trunk on a Rolm syster
music on hold while the Call Pilot talks to the invalid trunk. In
the trunk to be dropped without dropping the entire call. Dro
being connected to the error tone. This frees the voice mail
the user.
9/30/99
Voice Technologies Group is excited to announce version 2
< Back
Next >
Cancel

5 Click Next to display the Choose Destination Location window.

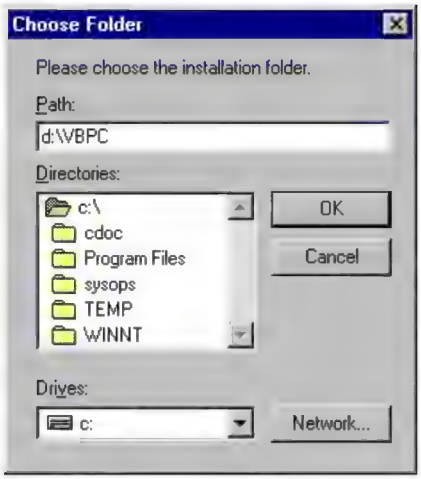

Choose Destination Location
Setup will install VoiceBridge 2000 in the following folder.
To install to this folder, click Next.
To install to a different folder, click Browse and select another folder.
You can choose not to install VoiceBridge 2000 by clicking Cancel to exit Setup.
Destination Folder
c:\VBPC
Browse...
< Back
Next >
Cancel

6 Change the VoiceBridge software destination folder:

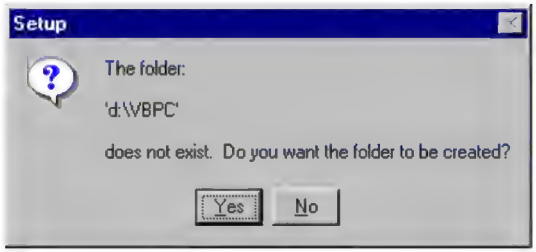
**a.** Click Browse... to display the Choose Folder dialog box.

**b.** Change the destination folder to d:\vbpc by typing the pathname in the Path field.

**c.** Click OK.

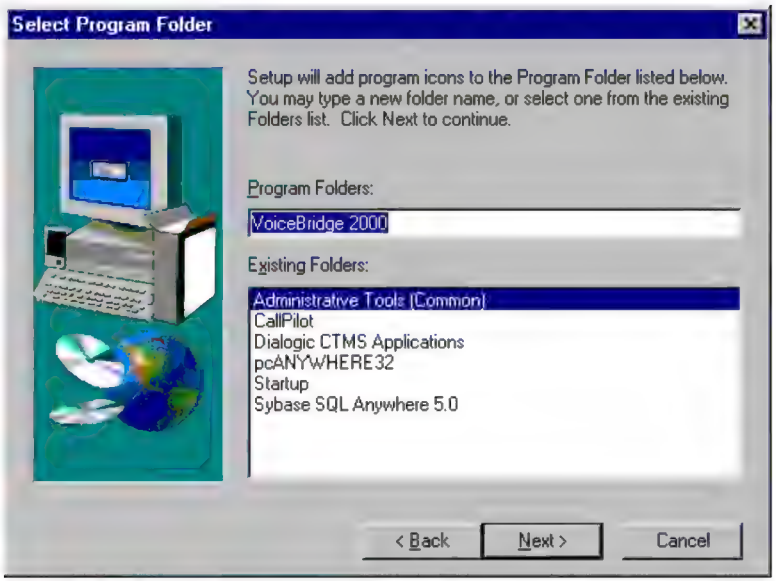



**d.** On the Setup window, click Yes to confirm the change.



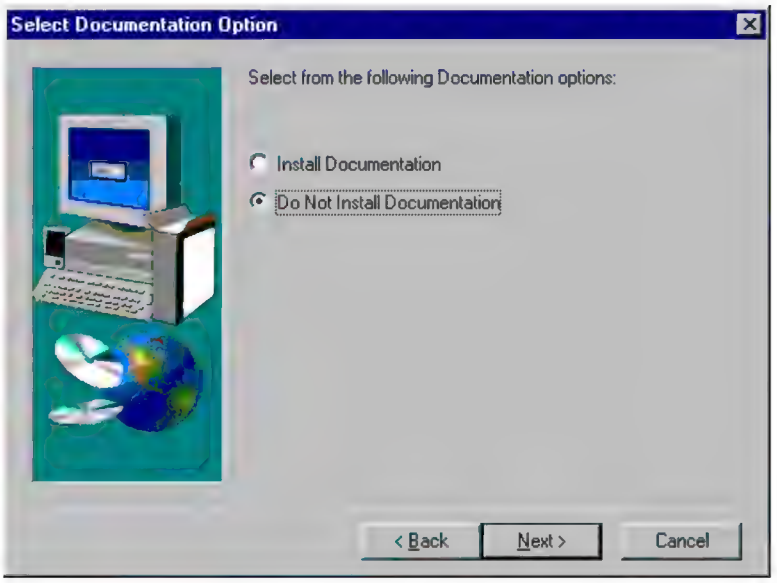

**Result:** The Choose Destination Location window appears.

7 Click Next to display the Select Program Folder window. Accept the default program folder name.

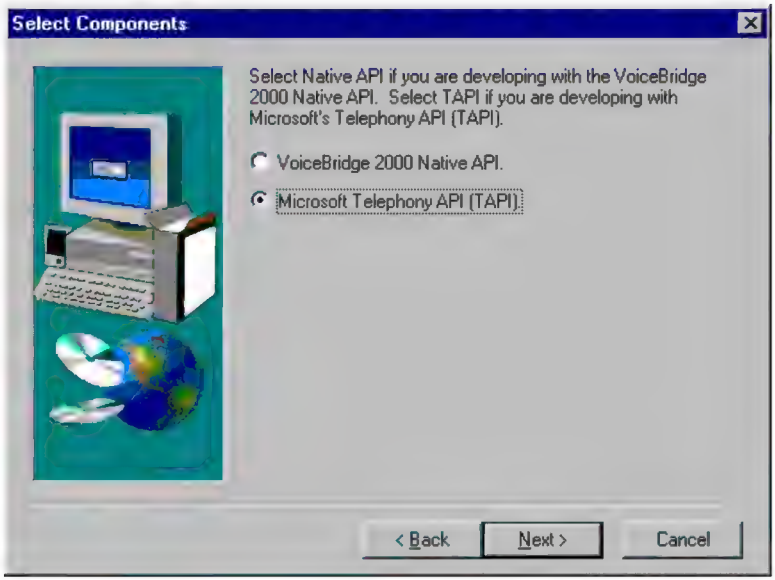

Select Program Folder
Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing Folders list. Click Next to continue.
Program Folders:
VoiceBridge 2000
Existing Folders:
Administrative Tools (Common)
CallPilot
Dialogic CTMS Applications
pcANYWHERE32
Startup
Sybase SQL Anywhere 5.0
< Back
Next >
Cancel

8 Click Next to display the Select Documentation Option window.

9 Select Install Documentation.

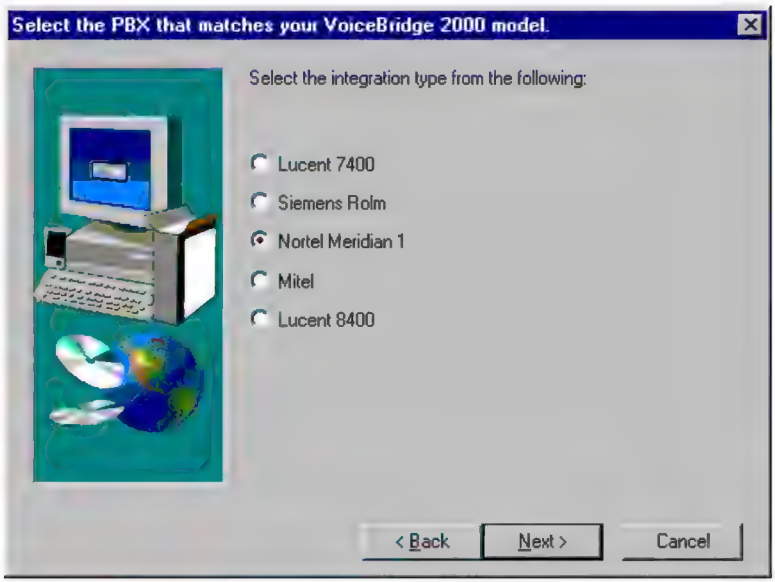


**10** Click Next to display the Select Components window.


Select Components
Select Native API if you are developing with the VoiceBridge 2000 Native API. Select TAPI if you are developing with Microsoft's Telephony API (TAPI).
VoiceBridge 2000 Native API.
Microsoft Telephony API (TAPI)
< Back
Next >
Cancel

**11** Select Microsoft Telephony API (TAPI).

**12** Click Next to display the PBX selection window.

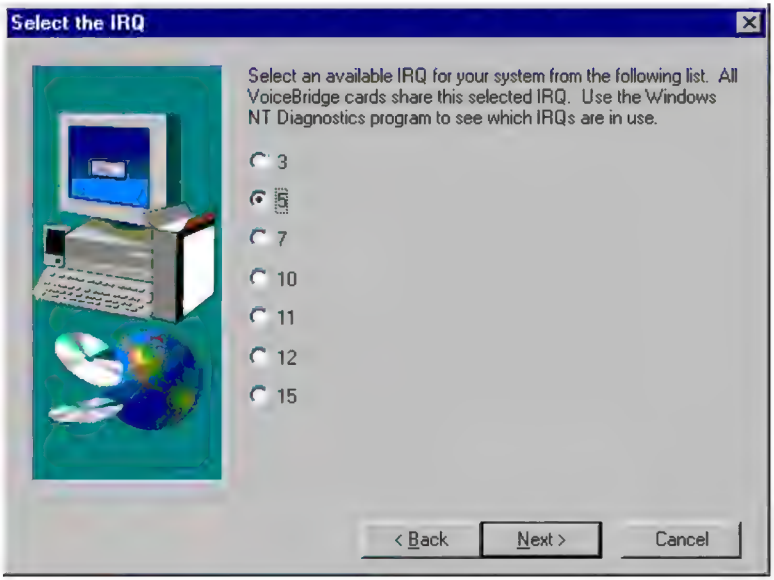


**13** When Setup prompts you to select the switch type

- for Rolm, select Siemens Rolm
- for M1-DSE, select Nortel Meridian 1
- for Mitel, select Mitel
- for Lucent 2-wire, select Lucent-8400

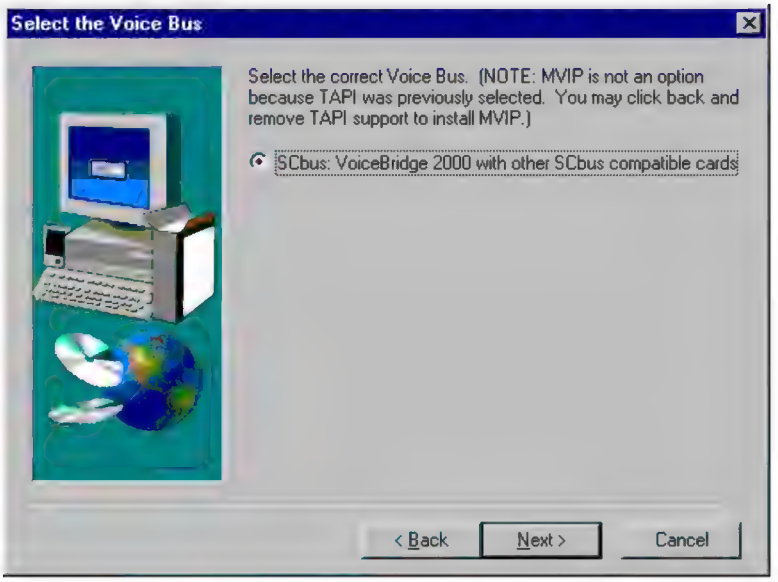
**Note:** Lucent-7400 is not supported.

**14** Click Next to display the Select the IRQ window.


Select the IRQ
Select an available IRQ for your system from the following list. All VoiceBridge cards share this selected IRQ. Use the Windows NT Diagnostics program to see which IRQs are in use.
3
5
7
10
11
12
15
< Back
Next >
Cancel

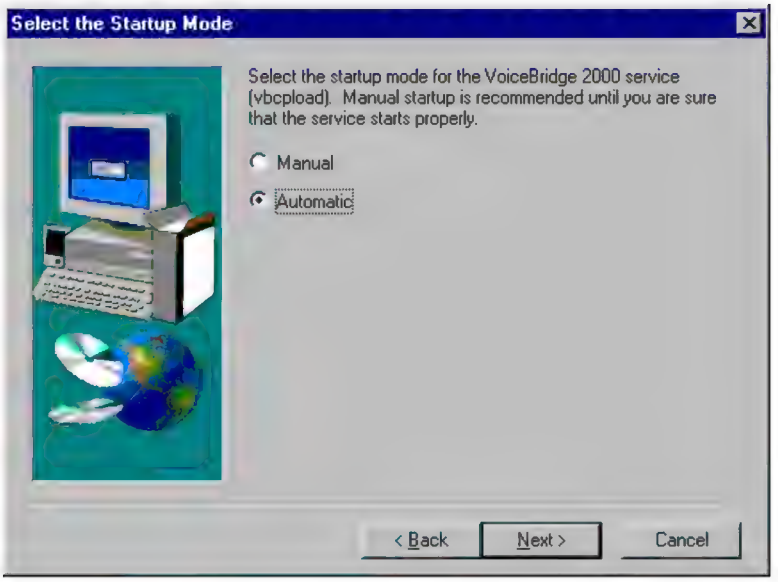
**15** Select IRQ 5.

**16** Click Next to display the Select the Voice Bus window.


Select the Voice Bus
Select the correct Voice Bus. (NOTE: MVIP is not an option because TAPI was previously selected. You may click back and remove TAPI support to install MVIP.)
SCbus: VoiceBridge 2000 with other SCbus compatible cards
< Back
Next >
Cancel

**17** Select the SCbus: VoiceBridge 2000 with other SCbus compatible cards option.

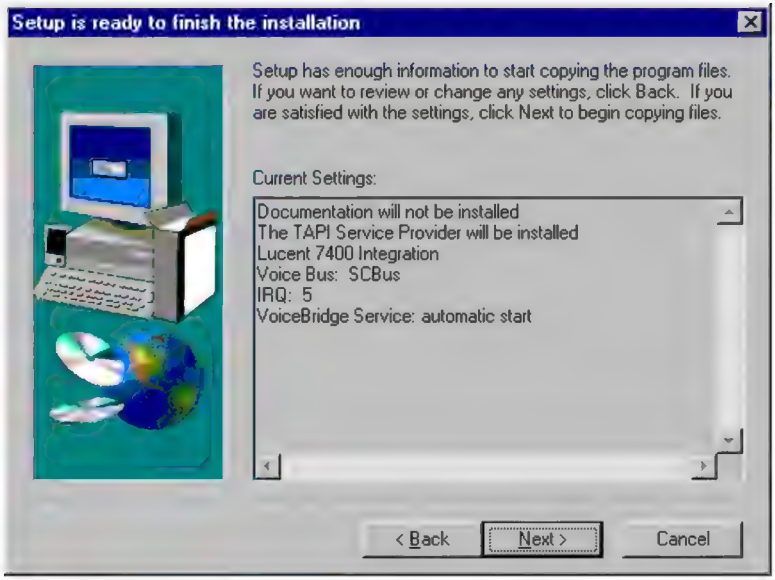
**18** Click Next to display the Startup Mode selection window.


Select the Startup Mode
Select the startup mode for the VoiceBridge 2000 service (vbcpload). Manual startup is recommended until you are sure that the service starts properly.
Manual
Automatic
< Back
Next >
Cancel

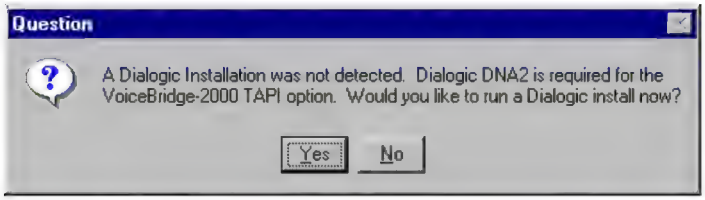
**19** Select Automatic startup mode for VBPC load.

**20** Click Next to display the Setup finish window.

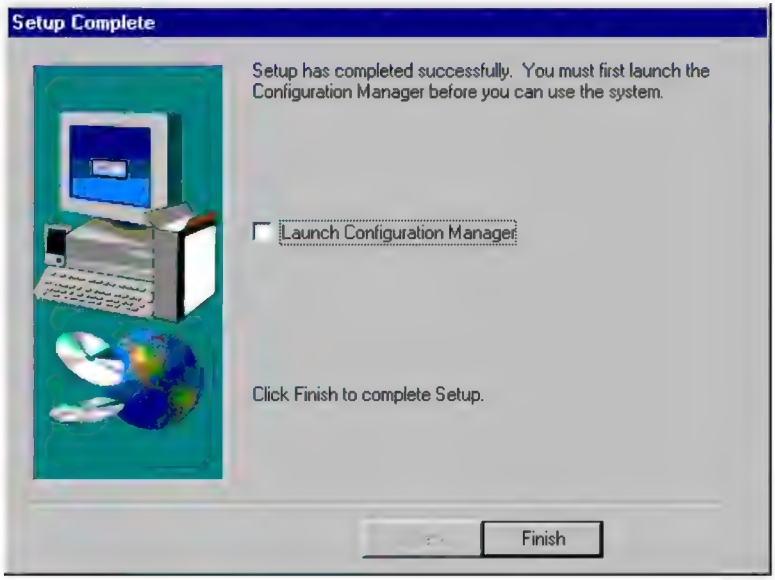
**21** Review the Current Settings list. Click Back to redisplay any window on which you want to make changes, or click Next to continue.


Setup is ready to finish the installation
Setup has enough information to start copying the program files. If you want to review or change any settings, click Back. If you are satisfied with the settings, click Next to begin copying files.
Current Settings:
Documentation will not be installed
The TAPI Service Provider will be installed
Lucent 7400 Integration
Voice Bus: SCBus
IRQ: 5
VoiceBridge Service: automatic start
< Back
Next >
Cancel

22 The Setup process displays a pop-up window that asks about Dialogic Installation. Click No.


Question
A Dialogic Installation was not detected. Dialogic DNA2 is required for the VoiceBridge-2000 TAPI option. Would you like to run a Dialogic install now?
Yes
No

**Result:** The Setup Complete window appears.

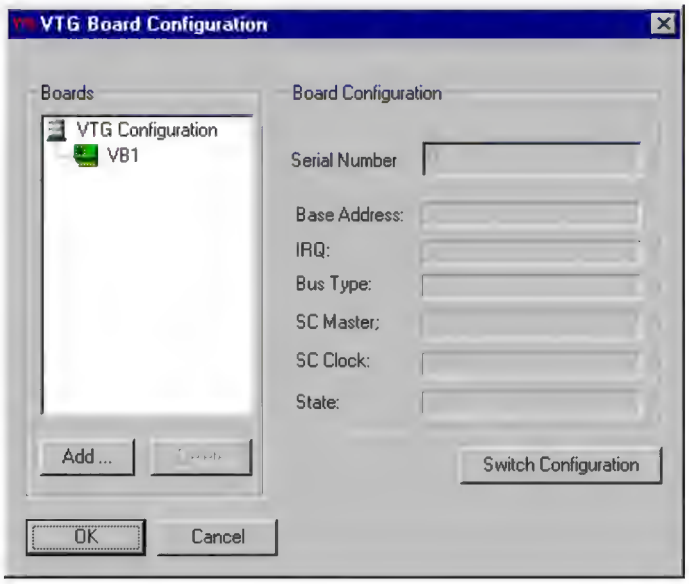

Setup Complete
Setup has completed successfully. You must first launch the Configuration Manager before you can use the system.
Launch Configuration Manager
Click Finish to complete Setup.
Finish

23 Uncheck Launch Configuration Manager, and click Finish.

## To run VTG configuration

24 After VTG software installation is finished, from the d:\nortel\bin directory, double-click vtgconfiguration.exe.

**25** In the VTG Boards area, click VB1 to highlight it. Click Delete to remove it.

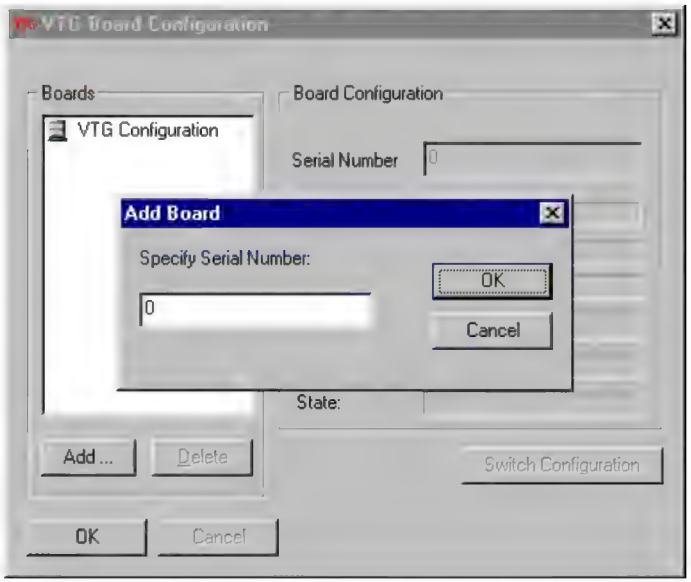



**26** Click Add to display the Add Board dialog box.

**27** Enter the serial number of the VTG board, and then click OK.

**Note:** If there are multiple VTG boards, it is important that you enter the serial numbers according to the location of the ISA slots. Refer to Chapter

6, "Performing hardware maintenance" for more information on the location of the ISA slots.




**ATTENTION**

You can find the VTG board serial number on a sticker on the backplate of the switch.

**28** Continue adding boards one by one.

**29** After all VTG boards are added, click OK to close the VTG configuration.

**30** Restart the server.

## What's next

Run the Configuration Wizard by selecting Start > Programs > CallPilot > Configuration Wizard.

Refer to Part 3, Chapter 6, "Configuring the server software—common dialog boxes for all switch types" for more information on running the Configuration Wizard.

# Installing software for the MSL-100/DMS-100 switch

## Introduction

Follow these procedures to install and configure software for the MSL-100/ DMS-100 switch.

## Requirements

- CallPilot 1.07 PEP CD

## To install Dialogic software

1. Insert the CallPilot 1.07 PEP CD into the CD-ROM drive and launch Windows NT Explorer.
2. Click the CD-ROM drive and navigate to the dialogic\dna3.1 directory.
3. Double-click Setup to start the Dialogic software installation.

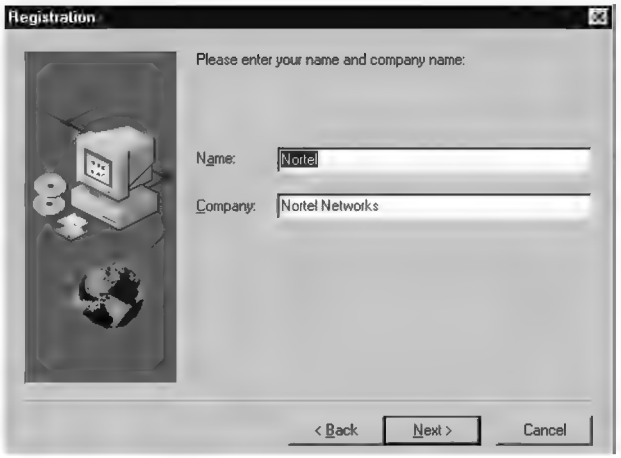
   **Result:** Dialogic setup initializes the system to install the Dialogic software.

Dialogic
System Software and SDK
for Windows NT
Copyright © 1998 Dialogic Corporation
Setup
Setup is preparing the InstallShield Wizard which will guide you through the rest of the setup process. Please wait.
77 %

**4** The system displays the Welcome to Dialogic Setup window.

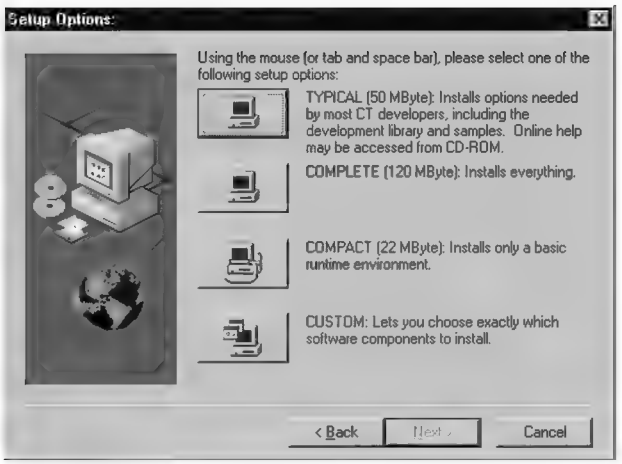
This program will install Dialogic System Software SDK for Windows NT DNA Version 3.1 onto your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel

**5** Click Next to display the Registration Window.

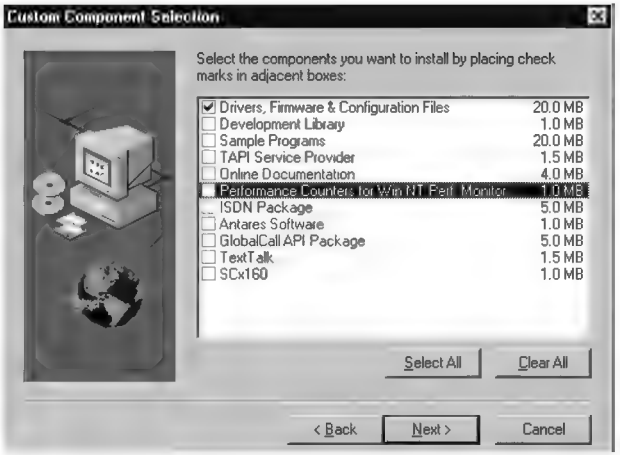



6 Enter the User name and Company name, and click Next to display the Setup Options window.

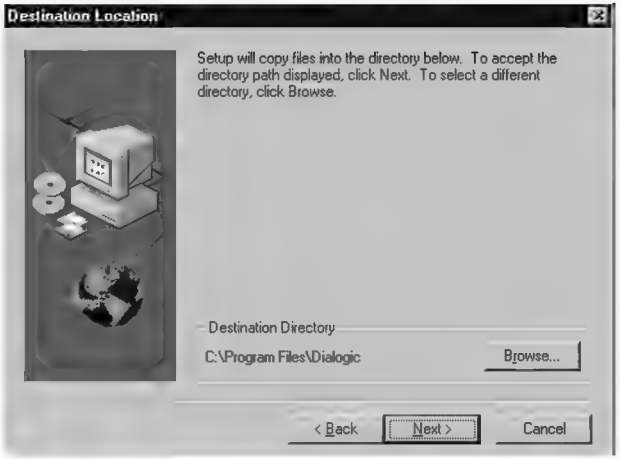
**Note:** Use the User name and Company name you entered during the installation of Windows NT.


Setup Options:
Using the mouse (or tab and space bar), please select one of the following setup options:
TYPICAL (50 MByte): Installs options needed by most CT developers, including the development library and samples. Online help may be accessed from CD-ROM.
COMPLETE (120 MByte): Installs everything.
COMPACT (22 MByte): Installs only a basic runtime environment.
CUSTOM: Lets you choose exactly which software components to install.
< Back
Next >
Cancel

7 Select the Custom option, and click Next to display the Custom Component Selection panel.


Custom Component Selection
Select the components you want to install by placing check marks in adjacent boxes:
Drivers, Firmware & Configuration Files 20.0 MB
Development Library 1.0 MB
Sample Programs 20.0 MB
TAPI Service Provider 1.5 MB
Online Documentation 4.0 MB
Performance Counters for Win NT Perfl Monitor 1.0 MB
ISDN Package 5.0 MB
Antares Software 1.0 MB
GlobalCall API Package 5.0 MB
TextTalk 1.5 MB
SCx160 1.0 MB
Select All
Clear All
< Back
Next >
Cancel

**8** Select the Drivers, Firmware and Configuration Files option. Click Next to display the Destination Location panel.

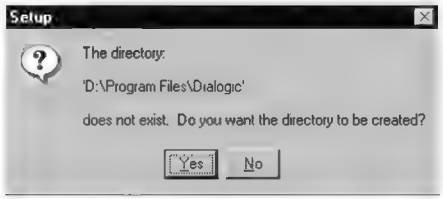

Destination Location
Setup will copy files into the directory below. To accept the directory path displayed, click Next. To select a different directory, click Browse.
Destination Directory
C:\Program Files\Dialogic
Browse...
< Back
Next >
Cancel

**9** Click Browse to create a directory where the setup process will copy files.

**Result:** The Choose Directory dialog box appears.

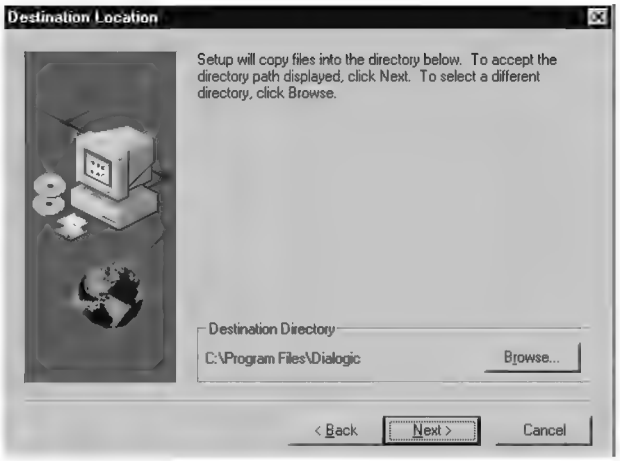
**10** In the Path box, enter d:\Program Files\Dialogic. Click OK.

**Result:** You are asked if you want to create the directory.

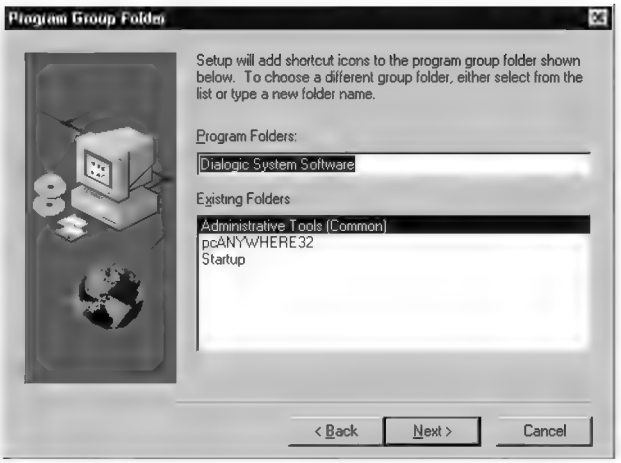



**11** Click Yes.

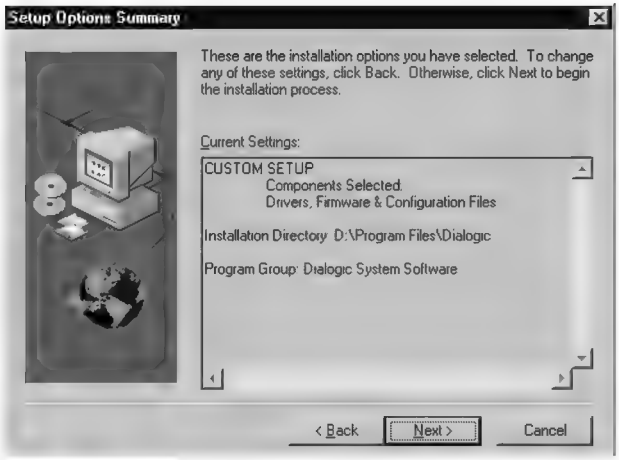
**Result:** The Destination Location panel redisplays, showing the new directory.


Destination Location
Setup will copy files into the directory below. To accept the directory path displayed, click Next. To select a different directory, click Browse.
Destination Directory
C:\Program Files\Dialogic
Browse...
< Back
Next >
Cancel

**12** Click Next to display the Program Group Folder panel.


Program Group Folder
Setup will add shortcut icons to the program group folder shown below. To choose a different group folder, either select from the list or type a new folder name.
Program Folders:
Dialogic System Software
Existing Folders
Administrative Tools (Common)
pcANYWHERE32
Startup
< Back
Next >
Cancel

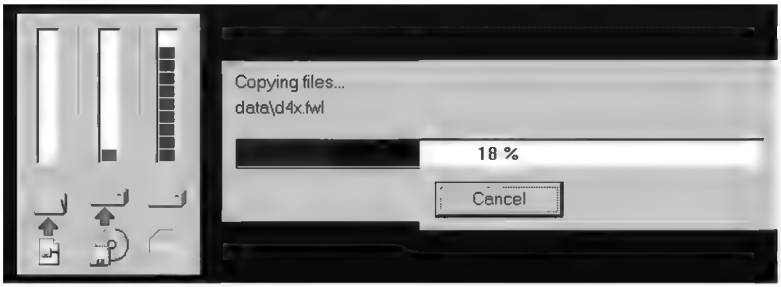
**13** Click Next to accept the default values and to display the Setup Options Summary panel.


Setup Options Summary
These are the installation options you have selected. To change any of these settings, click Back. Otherwise, click Next to begin the installation process.
Current Settings:
CUSTOM SETUP
Components Selected:
Drivers, Firmware & Configuration Files
Installation Directory: D:\Program Files\Dialogic
Program Group: Dialogic System Software
< Back
Next >
Cancel

**14** Click the Current Settings or Back to make changes.

**15** Click Next to begin installation.

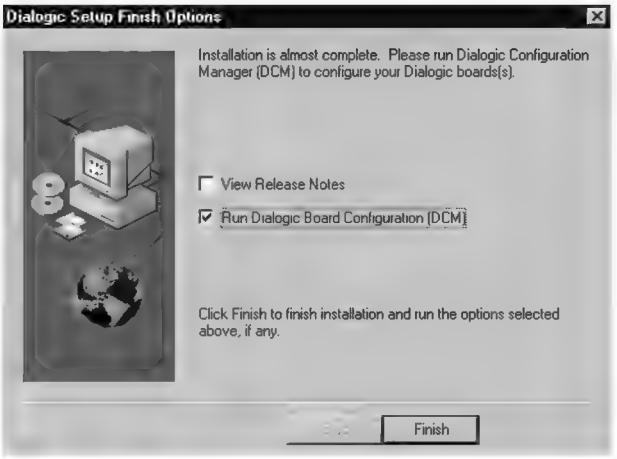
**Result:** The copying status window appears.




Once the files are copied, the Dialogic Setup Finish Options panel appears.

**16** Deselect the View Release Notes item. Select the Run Dialogic Board Configuration (DCM) item.

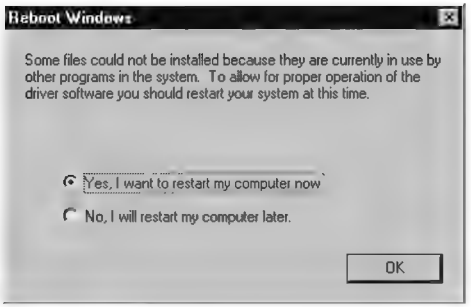
**17** Click Finish.


Dialogic Setup Finish Options
Installation is almost complete. Please run Dialogic Configuration Manager (DCM) to configure your Dialogic boards(s).
View Release Notes
Run Dialogic Board Configuration (DCM)
Click Finish to finish installation and run the options selected above, if any.
Finish

**Result:** You are asked if you would like to install GammaLink fax.

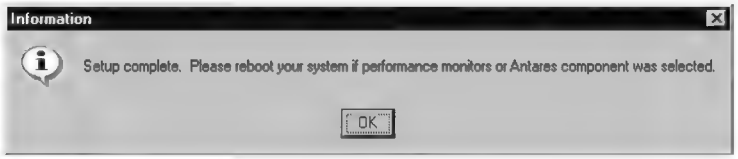
**18** Click No.

**Result:** The Reboot Windows dialog box appears.


Reboot Windows
Some files could not be installed because they are currently in use by other programs in the system. To allow for proper operation of the driver software you should restart your system at this time.
Yes, I want to restart my computer now
No, I will restart my computer later.
OK

19 Click No, I will restart my computer later.

**Result:** An information window appears showing setup is complete.

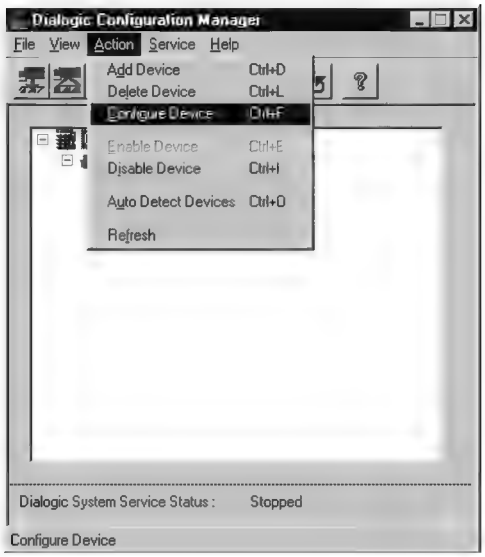



### To configure Dialogic software

20 Click OK to configure the Dialogic software.

**Result:** The Dialogic Configuration Manager window appears.

21 From the Dialog Configuration Manager menu, select Action > Configure Device to configure the Dialogic board.




**Result:** The Dialogic Configuration Manager - Properties for All devices window appears.

**22** Select the Telephony Bus tab. Highlight the parameter SCbusClockMasterSource, and edit it to have the Independent value.

**23** Select the Misc tab. Highlight ParameterFile, and edit it to have the spandti.prm value.

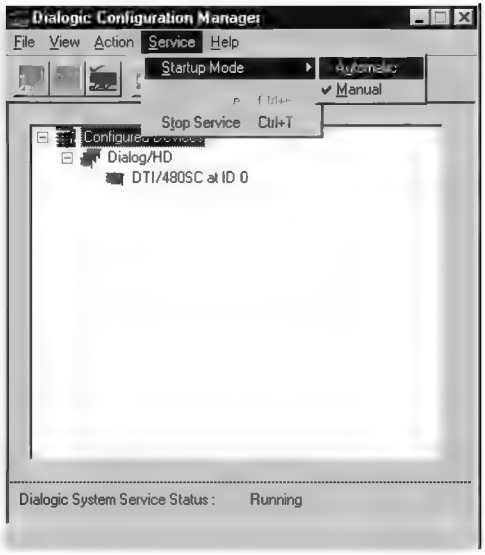
**24** Click OK to apply these changes and close the window.

Click Cancel to exit the window without applying the changes.

Click Apply to apply the changes without closing the window. You might select another tab to make changes.

**Result:** You are returned to the Dialogic Configuration Manager window.

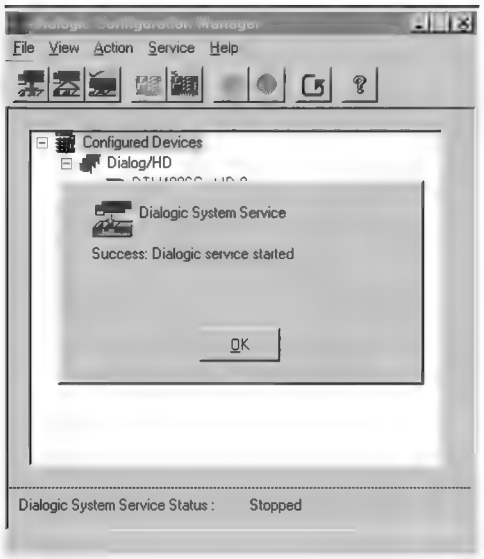
**25** Change the startup mode to automatic by selecting Service > Startup Mode > Automatic.




**Result:** The Start Service menu option activates.

**26** Select the Start Service menu option.

**Result:** The Dialogic System Service pop-up window appears.




**27** Click OK to close the pop-up window.

**28** Click File > Exit to exit the Dialogic Configuration Manager.

**29** Remove the PEP CD from the CD-ROM drive.

**30** Start to configure CallPilot by running the Configuration Wizard.

## What's next

Run the Configuration Wizard by clicking Start > Programs > CallPilot > Configuration Wizard.

For more information on running the Configuration Wizard, refer to Part 3, Chapter 6, "Configuring the server software—common dialog boxes for all switch types".

# Chapter 9

# Upgrading CallPilot server software

## In this chapter


Pre-upgrade checklist 376

Preparing for the upgrade 381

Upgrading from 1.0 or 1.06 to 1.07 385

# Pre-upgrade checklist

## Introduction

This section provides an upgrade readiness checklist that should be performed before attempting the upgrade at the customer site. This enables you to

- avoid significant lost time and costs
- significantly reduce system downtime resulting from upgrade problems that might have been prevented.

A summary of the upgrade readiness checks includes the following steps:

- Ensure dial-up networking can be established with the CallPilot server.
- Ensure a pcANYWHERE32 session can be established with the CallPilot server.
- Ensure the MMFS is less than 90 percent full.
- Check if the customer has recorded customized prompts.
- Check Meridian 1 for required software, feature packages, and patches.
- Check system information, such as keycode and serial number.
- Check for "critical" PEPs that have been issued since the release of the last 1.07 build.

If one of these readiness checks fails, the failure should be corrected before attempting the upgrade again. Details of the readiness checks follow.

## To ensure a dial-up networking session can be established with CallPilot

If the PC is not on an IP network connected to the CallPilot server, establish a connection using Dial-Up Networking.

1 Click Start > Programs > Accessories > Dial-Up Networking.

2 Double-click the MAS icon.

If the icon is unavailable, create a MAS connection profile. See "Creating the MAS connection profile" on page 470 of the *CallPilot 1.0 Maintenance and Diagnostics Guide*.

3 When prompted, enter the Windows NT logon ID and password.

4 Wait until the connection is established.

## To ensure a pcANYWHERE32 session can be established with CallPilot

If pcANYWHERE32 is not functioning prior to the upgrade, the upgrade will not change this. If the upgrade is performed and a problem occurs, remote support access is not possible.

Do not attempt an upgrade to 1.07 until pcANYWHERE32 is functioning.

Given a dial-up networking session has been established, establish a pcANYWHERE32 connection to the CallPilot server:

1 Click Start > Programs > pcANYWHERE32 > pcANYWHERE.

2 Double-click the remote control icon for the server.

3 If the icon is unavailable, create a server connection profile. See "To create a remote control connection icon" on page 470 of the *CallPilot 1.0 Maintenance and Diagnostics Guide*.

4 When prompted, enter the pcANYWHERE32 logon ID and password.

If a pcANYWHERE32 session can not be established, open a ticket with Nortel Networks CTS. You require pcANYWHERE32 access for remote support.

## Ensure MMFS volume on Disk 1 is less than 90 percent full

Use the administrative client to check that the MMFS volume on Disk 1 (drive D) is less than 90 percent full. Do not proceed with the upgrade if the MMFS volume on Disk 1 (drive D) is greater than 90 percent full.

If the MMFS volume is greater than 90 percent full, then the upgrade of the system to the latest release of the voice prompts might fail.

To find out how much space is used on each volume, perform the following steps:

1 On the Administrative client, select SMI > System Administration > System Performance Monitoring. Double-click "Reporter Download Schedule."

**Result:** The system displays the "Select the drive for the local OM database" dialog box.

2 Click OK to continue.

3 From the Reporter Download Schedule window, press Download Now.

**Note:** If Nortel Communicator is not running, you are prompted to start the Communicator. Click Yes to continue.

4 Select an interval for the OM collection period and click OK. A smaller interval downloads more quickly.

**Result:** The system downloads the Operational Measurements data from the server to the client PC.

5 When the OM download is complete, click Save.

6 To run the system reports, select Start > Programs > MAS Reporter > Reports. The default password for Reporter is "password." You might need to change the password if you have not already done so.

7 Select your system name > Reports. Double-click the System folder and double-click Multimedia File System Usage Monitor Report.

8 Specify an interval.

9 Click OK.

**Result:** A report appears that shows the amount of text and voice space used for each of the volumes on the system.

10 Exit Reporter.

## Check if custom prompts have been recorded

Use the administrative client to check if custom prompts have been recorded.

View the prompts in the System Prompts Customization main window by selecting one of the following paths.

### For 1.0 systems

Nortel SMI > Meridian Application Server > CallPilot > System Prompts Customization.

### For 1.06 systems

Nortel SMI > Meridian Application Server > Messaging > System Prompts Customization.

If one or more prompts are custom, then archive the custom prompts by selecting one of the following paths:

### For 1.0 systems

Nortel SMI > Meridian Application Server > CallPilot > Archive & Restore > Archive Manager

### For 1.06 systems

Nortel SMI > Meridian Application Server > Messaging > Archive & Restore > Archive Manager

After the upgrade to 1.07, the custom prompts can be restored on the system from the archived copy.

## Ensure the Meridian 1 switch has required patches

Check the Meridian 1 patches against the requirements stated in Part 3, Chapter 3. If the required patches are not present on the Meridian 1, do not proceed with an upgrade until the Meridian 1 switch is ready. Without the required patches on the Meridian 1, ring-no-answer and other issues can result.

## Checking system information

To locate information about your system that you might need for the upgrade, click Start > Programs > CallPilot 1.0 (or 1.06) Server > CallPilot System Information. Ensure that the

- Security Device ID (Sec. Dev. ID) on the 1.07 keycode label matches the CallPilot serial number that appears on the CallPilot System Information dialog box. If these two items do not match, your Nortel Networks customer support representative must generate a new keycode so you can upgrade your system.
- Feature limits displayed on the 1.07 keycode label are greater than or equal to the feature limits displayed on the CallPilot System Information dialog box.

Features cannot be reduced. For example, if you currently have three voice prompt languages installed on your system, you cannot reduce the number of languages to two.

## Check for critical PEPs that have been issued since 1.07 was released

Check the NIC web site at http://www.nortelnetworks.com/prd/nic (Products > CallPilot) for any additional PEPs that might have been made available since the manufacture of the PEP CD. If critical PEPs are available, apply them immediately after installing the PEPs from the PEP CD.

**Note:** The NIC web site is a secure site and requires a user name and a password to log on. If you do not currently have an account, you must apply for one prior to entry. Be advised it might take three to five business days for your account request to be processed.

# Preparing for the upgrade

## Introduction

Use the procedures in this section to upgrade to a new release of CallPilot software. To upgrade you must replace the CallPilot software with a higher numbered release.

You can upgrade

- from a previous release (1.0 or 1.06)
- from a previous release (1.0 or 1.06) after performing an expansion
- from a previous release (1.0 or 1.06) at the same time as performing an expansion

**Note:** You cannot downgrade to a previous version of CallPilot software.

## Timing

The upgrade process takes approximately 60 minutes.

## Requirements

- a 1.07 keycode
- CallPilot 1.07 Server CD
- CallPilot 1.07 PEP CD
- CallPilot 1.07 Language CD
- a copy of the latest General Release Bulletin (GRB). It is important that you review this document for special instructions before starting the upgrade.
- a CallPilot mailbox, a phoneset, and the phone number of the customer's IVF Messaging application to check that CallPilot is operational after the upgrade
- if the customer has the fax or speech recognition options, a fax machine and the phone numbers for Express Fax Messaging and/or Speech Activated Messaging

## Upgrade checklist

| Step | ✔ |
|---|---|
| Review the pre-upgrade checklist on page 376. | |
| Disable all DSP and DS30 channels. Refer to "To disable all DSP and DS30 channels from the Administrative PC" on page 383 for more information on performing this step. | |
| Have on hand a 1.07 keycode and serial number. Check that the keycode and serial number are valid by following the steps listed in "Checking system information" on page 379. | |
| Obtain the current password for the Administrator or NGenSys account.<br>If you are unfamiliar with these passwords, contact the company's network administrator. | |
| Start services. See "To start services" below for more information. | |
| Perform a full backup.<br>See *Monitoring and Security for the Administrator*. | |

## Before you begin

Check that all services starting with the prefix MAS and CallPilot (MCE) are up and running before starting the upgrade.

### To start services

1 Click Start > Settings > Control Panel > Services.

2 Select the MAS and CallPilot (MCE) services that have not been started.

3 Check that the startup states are set to Automatic.

4 Click OK to confirm.

5 Exit the Services application.

### To disable all DSP and DS30 channels from the Administrative PC

Before upgrading the server, disable the DSP and DS30 channels and then shut down the Administrative PC.

1 From the Administrative PC, click Start > Programs > CallPilot Administration Client.

**Result:** An Explorer window appears.

2 Click your server icon.

**Result:** The SMI Login screen appears.

3 Enter your user ID and password, and then click OK.

4 From the Administration Menu, select System Administration > Maintenance Administration.

5 Double-click the Channel Monitor option.

**Result:** The DS30 channels appear.

6 Highlight the channel by clicking the DS30 channel entry.

7 From the File menu, select Courtesy Stop.

**Result:** The highlighted DS30 channel changes to off-duty status and becomes disabled.

8 Double-click the Multimedia Monitor option.

**Result:** The DSP channels appear.

9 Highlight the channel by clicking the DSP channel entry.

10 From the File menu, select Courtesy Stop.

**Result:** The highlighted DSP channel changes to off-duty status and become disabled.

11 After disabling all DSP channels, dial in to CallPilot to test that the lines are disabled. You should receive a busy signal.

12 Shut down the Administrative PC.

### If you upgrade from a networked CD

If you perform an upgrade from a networked CD, the machine that serves the CD must have Windows NT 4.0 (Server or Workstation) and be accessible over the LAN.

### To reassign the drives

If the CD-ROM is mapped as drive E:, you need to reassign the drives.

1 Click Start > Programs > Administrative Tools (Common) > Disk Administrator.

2 Select the CD-ROM drive.

3 On the Tools menu, select Assign Drive Letter.

4 Click the option button for Assign Drive Letter and select Z: from the drop-down list.

5 Click OK.

**Result:** Setup prompts you to confirm the change.

6 Click Yes to confirm. The new drive assignment occurs immediately.

7 Select the second hard drive (currently drive F:) and change its drive to E:.

### To prepare a keycode file

You require a new keycode to upgrade your CallPilot system. This keycode should be different than the keycode supplied with your initial CallPilot system.

You can either manually enter the keycode or read it from a file.

1 Open a document in a text-editing application (such as Notepad). The keycode is supplied by Nortel Networks, and consists of 7 sets of 4 alphanumeric characters.

2 Type the keycode into the file, placing a space between each set of characters.

3 Save the file as a *.kc document.

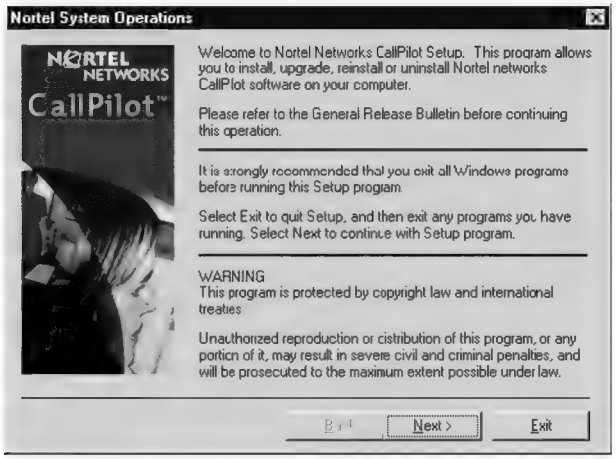
# Upgrading from 1.0 or 1.06 to 1.07

## To upgrade to a newer release

1. Log on to the server using an account with local administrative privileges (for example, Administrator or NGenSys).
2. Close all applications except for pcANYWHERE32, acdproxy, Sybase, and the MASTraceWindow.
3. Disable all DSP and DS30 channels using the administrative PC. Refer to "To disable all DSP and DS30 channels from the Administrative PC" on page 383 for instructions on how to stop these channels.
4. If you are upgrading from 1.0, install Service Pack 5 before starting the upgrade. Refer to "Installing WinNT 4.0 Service Pack 5" on page 298.
5. Insert the 1.07 Server CD in the CD drive.
6. From the Windows taskbar, click Start > Run.
7. Click Browse.

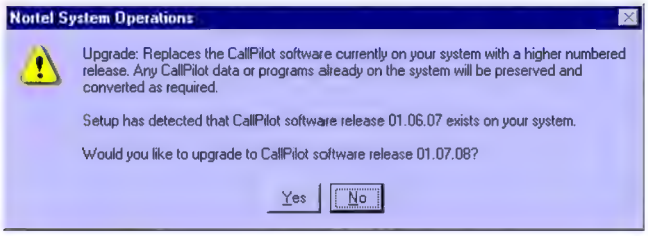
   **Result:** A Browse window appears.
8. Select the CD-ROM drive and double-click setup.exe.
9. Click OK from the Run window.

   **Result:** The Nortel System Operation window appears.


Nortel System Operations
NORTEL NETWORKS
CallPilot
Welcome to Nortel Networks CallPilot Setup. This program allows you to install, upgrade, reinstall or uninstall Nortel networks CallPilot software on your computer.
Please refer to the General Release Bulletin before continuing this operation.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Select Exit to quit Setup, and then exit any programs you have running. Select Next to continue with Setup program.
WARNING
This program is protected by copyright law and international treaties
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Exit

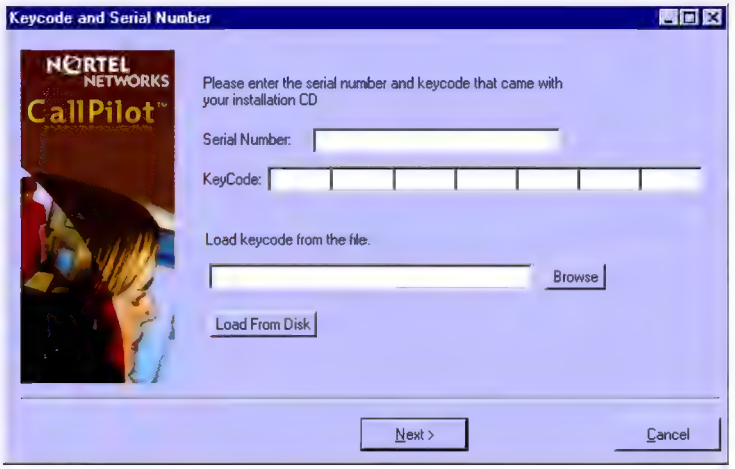
**10** Click Next to continue with upgrade.

**Result:** Setup examines the system and then prompts you to confirm the upgrade.


Nortel System Operations
Upgrade: Replaces the CallPilot software currently on your system with a higher numbered release. Any CallPilot data or programs already on the system will be preserved and converted as required.
Setup has detected that CallPilot software release 01.06.07 exists on your system.
Would you like to upgrade to CallPilot software release 01.07.08?
Yes
No

**11** Click Yes to start the upgrade.

**Result:** The Keycode and Serial Number window appears.

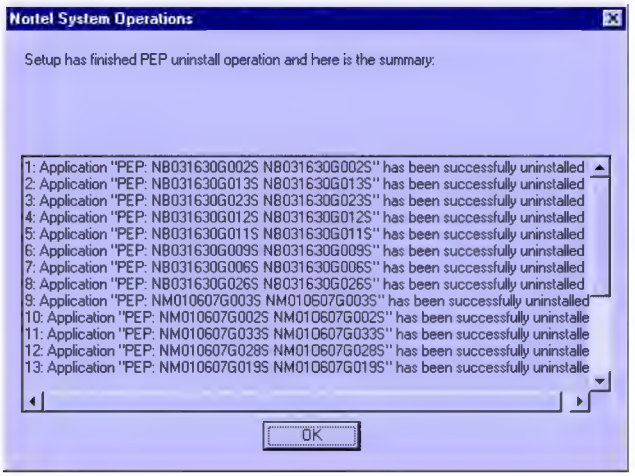



**12** Enter the new 1.07 keycode, and then click Next.

**Result:** The Features Verification window appears.

**13** Click Next.

**Result:** Setup automatically uninstalls previous PEPs as part of the upgrade procedure. After all PEPs have been uninstalled, a dialog box appears showing the PEPs that have been uninstalled.


Nortel System Operations
Setup has finished PEP uninstall operation and here is the summary:
1: Application "PEP: NB031630G002S NB031630G002S" has been successfully uninstalled
2: Application "PEP: NB031630G013S NB031630G013S" has been successfully uninstalled
3: Application "PEP: NB031630G023S NB031630G023S" has been successfully uninstalled
4: Application "PEP: NB031630G012S NB031630G012S" has been successfully uninstalled
5: Application "PEP: NB031630G011S NB031630G011S" has been successfully uninstalled
6: Application "PEP: NB031630G009S NB031630G009S" has been successfully uninstalled
7: Application "PEP: NB031630G006S NB031630G006S" has been successfully uninstalled
8: Application "PEP: NB031630G026S NB031630G026S" has been successfully uninstalled
9: Application "PEP: NM010607G003S NM010607G003S" has been successfully uninstalled
10: Application "PEP: NM010607G002S NM010607G002S" has been successfully uninstalle
11: Application "PEP: NM010607G033S NM010607G033S" has been successfully uninstalle
12: Application "PEP: NM010607G028S NM010607G028S" has been successfully uninstalle
13: Application "PEP: NM010607G019S NM010607G019S" has been successfully uninstalle
OK

14 Click OK to continue.

**Result:** You are prompted to confirm the platform settings for your system. If the settings are correct, click Yes. Otherwise, click No.

15 The upgrade process runs automatically. A series of messages appear, to indicate the items that are being updated (for example, backup/restore, MMFS).

16 After the upgrade is complete, setup prompts you to install PEPs.

17 Click Yes to continue. Remove the Server CD and insert the PEP CD.

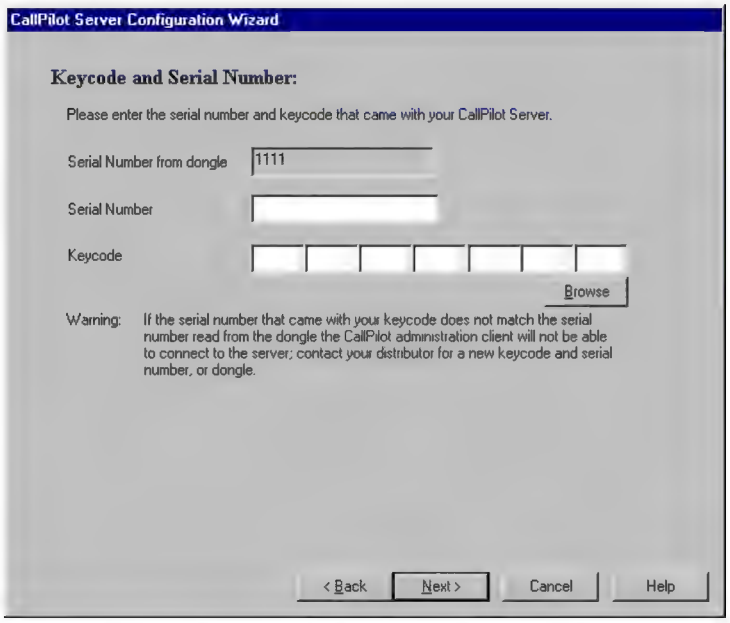
Refer to "Installing PEPs" on page 338 for more information on installing PEPs.

18 After all the PEPs are installed, restart the server.

19 After the server restart, run the Configuration Wizard by clicking Start > Programs > CallPilot > Configuration Wizard.

## To run the Configuration Wizard

20 Leave all current values in the Configuration Wizard dialog boxes as they are until you reach the Keycode and Serial Number dialog box shown here.


CallPilot Server Configuration Wizard
Keycode and Serial Number:
Please enter the serial number and keycode that came with your CallPilot Server.
Serial Number from dongle
1111
Serial Number
Keycode
Browse
Warning:
If the serial number that came with your keycode does not match the serial number read from the dongle the CallPilot administration client will not be able to connect to the server; contact your distributor for a new keycode and serial number, or dongle.
< Back
Next >
Cancel
Help

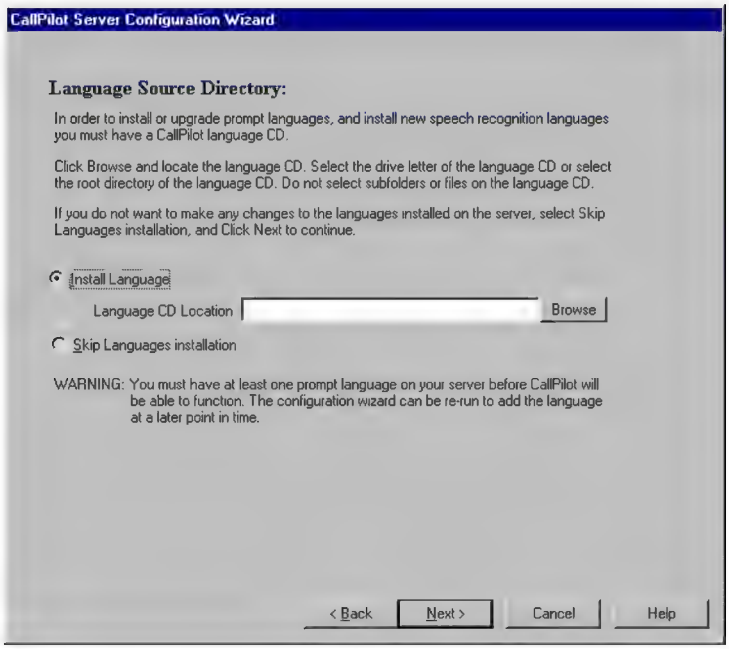
**21** Enter the serial number you received with the CallPilot keycode in the Serial Number box. This number should match the prefilled Serial Number from dongle box.

If the serial number contains letters, use lowercase.

**Note:** The Serial Number from dongle box is prefilled with data read from the software feature key.

**22** The keycode is prefilled with the value entered in step 12. Verify that the keycode is correct.

**23** Click Next through the remaining Configuration Wizard dialog boxes until the following dialog box.


CallPilot Server Configuration Wizard
Language Source Directory:
In order to install or upgrade prompt languages, and install new speech recognition languages you must have a CallPilot language CD.
Click Browse and locate the language CD. Select the drive letter of the language CD or select the root directory of the language CD. Do not select subfolders or files on the language CD.
If you do not want to make any changes to the languages installed on the server, select Skip Languages installation, and Click Next to continue.
Install Language
Language CD Location
Browse
Skip Languages installation
WARNING: You must have at least one prompt language on your server before CallPilot will be able to function. The configuration wizard can be re-run to add the language at a later point in time.
< Back
Next >
Cancel
Help

**24** Remove the PEP CD and insert the CallPilot 1.07 Language CD.

**25** Select Install Language.

**26** Click Browse and select the CD-ROM drive.

**Note:** Select the root level of the CD-ROM. Do not select subfolders or files on the CD. For example, if the CD-ROM is drive Z:, select Z:.

**27** Click Next.

**Result:** The following dialog box appears, which lists all currently installed languages:

CallPilot Server Configuration Wizard
Reinstall / Upgrade Existing Languages:
This screen displays your currently installed languages. If you wish to upgrade or reinstall a language (or languages) that is currently installed on your system, then please select it (or them) from the list below.
Only the currently installed languages that are available on the language CD may be selected.
Please select Next to continue.
English(American)
< Back
Next >
Cancel
Help

**28** Select the language you want to upgrade and click Next.

**Result:** The Add Prompt Language dialog box appears.

**29** To add a language, select the prompt language check box. Click Next.

**Result:** The Primary and Secondary Languages dialog box appears.

**30** Click Next to accept the currently assigned primary and secondary languages.

**Result:** The Speech Recognition Languages dialog box appears.

**31** Click Next to skip this dialog box.

**Result:** The language installation dialog boxes are completed.

**32** Click Next through the remaining Configuration Wizard dialog boxes until the Ready to Configure dialog box appears.

33 Select Apply the current configuration, and click Next.

**Result:** The configuration changes are applied to the server. This is followed by a prompt to restart to CallPilot.

**Note:** The configuration changes take approximately 10 minutes, plus an additional 10 minutes for each language you are upgrading.

34 Click Finish, and then click Cancel to bypass the restart.

## To enable the DSP channels

35 From the Administrative PC, click Start > Programs > CallPilot Administration Client.

**Result:** An Explorer window appears.

36 Click your server icon.

**Result:** The SMI Login screen appears.

37 Enter your user ID and password, and then click OK.

38 From the Administration Menu, double-click Multimedia Monitor.

**Result:** The DSP channels appear.

39 If the DSP channels are not enabled, skip to step 40. Otherwise, skip to step 42 to check the DS30 channels.

40 Highlight the channel by clicking the DSP channel entry.

41 From the File menu, select Start Channels.

**Result:** The highlighted DSP channel changes to online status and becomes enabled.

42 Double-click the Channel Monitor option.

**Result:** The DS30 channels appear.

43 If the DS30 channels are not enabled, then skip to step 44. Otherwise, skip to step 46 to test the system.

44 Highlight the channel by clicking the DS30 channel entry.

45 From the File menu, select Start Channels.

**Result:** The highlighted DS30 channel changes to online status and becomes enabled.

**46** After disabling all DSP channels, dial in to CallPilot to test that the lines are enabled. You should receive a prompt.

## What's next

Test that CallPilot can receive calls by following the procedures in Part 3, Chapter 11, "Verifying that CallPilot can receive calls".

# Chapter 10

# Expanding CallPilot features

## In this chapter

Expanding features 396

# Expanding features

## Introduction

This chapter summarizes how you add features to CallPilot.

CallPilot supports feature reduction only for those channels that have been previously allocated.

## Expansions

The following types of features can be expanded:

- channels
- languages
- number of networking sites
- number of MPUs
- availability of features such as AppBuilderFax and Networking

## To add features

1. If you are increasing system capacity, install any additional hardware that was shipped to you (for example, additional cards or boards). Refer to the hardware maintenance section of this Installation binder for installation instructions.
2. Install the software feature key adapter if a new one was shipped to you. Refer to Part 2 of this Installation binder for instructions.
3. Have your new keycode and serial number available. When you purchase additional features or system capacity, you receive a new keycode and serial number.
4. Run the Configuration Wizard (refer to Part 3, Chapter 6, "Configuring the server software—common dialog boxes for all switch types"). In the Configuration Wizard, ensure you do the following steps:
   a. Enter the new keycode and serial number.

**b.** Allocate new channels (if you have added channels).

**ATTENTION**

New channels are not automatically allocated. They must be manually allocated using the Configuration Wizard.

**5** Configure additional channels on the switch and in the Configuration Wizard.

# Chapter 11

# Uninstalling CallPilot server software

## In this chapter

Uninstall procedures 400

# Uninstall procedures

## Introduction

This section provides instructions to help you uninstall the CallPilot server software.

Uninstallation of CallPilot removes the software completely from the server. It also removes all CallPilot registry entries, linguistic information, and all links to CallPilot from the server database.

**ATTENTION**

Once you start the uninstallation process, you cannot restore CallPilot if you decide to cancel the process. You must perform a new installation to load CallPilot onto the server.

## What is removed during uninstallation of CallPilot

Uninstallation of CallPilot software removes the following items:

- CallPilot entries in the Windows NT Registry
- all CallPilot entries in the server database
- CallPilot files

## Before you begin

Obtain the current password for the Administrator account.

## Switch-related procedures

Note that the uninstall procedure varies depending upon the switch connectivity installed at the customer site.

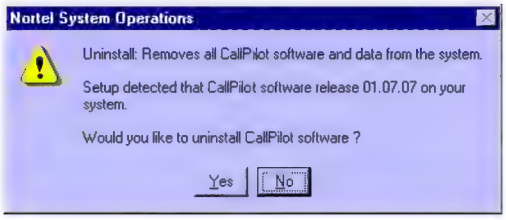
### To uninstall Meridian 1

See "To uninstall CallPilot server software" on page 403 for instructions on how to uninstall Meridian 1 software.

### To uninstall Lucent, Mitel, Rolm

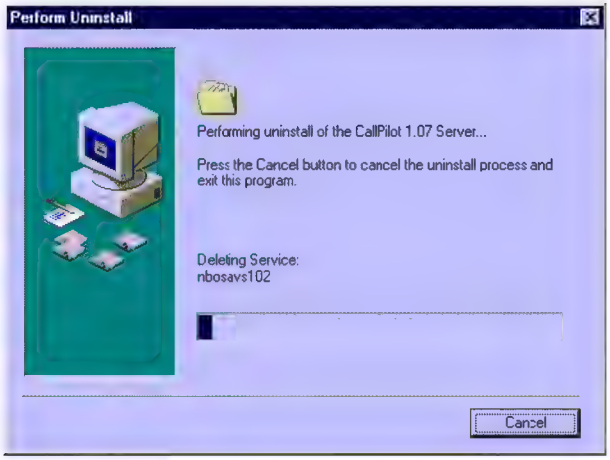
1 Uninstall CallPilot by clicking Start > Programs > CallPilot > Uninstall.

**Result:** You are prompted to confirm the uninstallation.

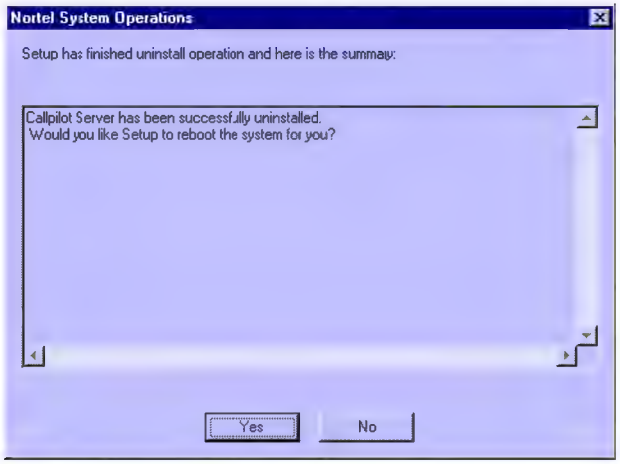

Nortel System Operations
Uninstall: Removes all CallPilot software and data from the system.
Setup detected that CallPilot software release 01.07.07 on your system.
Would you like to uninstall CallPilot software ?
Yes
No

2 Click Yes to uninstall CallPilot.

**Result:** The uninstall process runs automatically. During this process, the following window appears:


Perform Uninstall
Performing uninstall of the CallPilot 1.07 Server...
Press the Cancel button to cancel the uninstall process and exit this program.
Deleting Service:
nbosavs102
Cancel

3 After the CallPilot uninstall is complete, the following window appears:


Nortel System Operations
Setup has finished uninstall operation and here is the summary:
Callpilot Server has been successfully uninstalled.
Would you like Setup to reboot the system for you?
Yes
No

4 Click No to bypass the server restart.

5 Shut down services by clicking Start > Settings > Control Panel. Double-click Services, and stop the following services in the given order:

- Notification Service
- CallPilot SLEE Service
- EMCI
- Remote Access Server
- Telephony Service
- vbpcload

6 To uninstall the VTG software, click Start > Programs > VoiceBridge 2000 > Uninstall.

7 Click Yes to confirm uninstall.

8 Click No to All to keep shared files.

9 When the uninstall is complete, shut down Windows NT and restart the server.

### To uninstall DMS-100/MSL-100

1 Uninstall CallPilot from the server by following the procedure described in "To uninstall CallPilot server software" below. When prompted to restart the server, select No.

2 After CallPilot is uninstalled, remove the Dialogic software by clicking Start > Programs > Dialogic > Uninstall.

3 Click Yes to confirm uninstall.

4 Restart the server.

## To uninstall CallPilot server software

1 To uninstall CallPilot, click Start > Programs > CallPilot > Uninstall.

**Result:** You are prompted to confirm the uninstallation.

2 Click Yes to uninstall CallPilot.

**Result:** The uninstall process runs automatically.

3 After the CallPilot uninstall is complete, you are prompted to restart the server.

4 Click Yes to restart the server.

**Result:** You are asked to confirm the restart.

5 Click OK to restart.

# Chapter 12

# Reinstalling CallPilot server software

## In this chapter


Reinstalling the software (hard drive is functioning) 406

Reinstalling languages 412

# Reinstalling the software (hard drive is functioning)

## Introduction

If the hard drive is functioning but the CallPilot software appears to be corrupted, you can reinstall the CallPilot server software. This might correct the problem. If it does not correct the problem, then you need to rebuild the hard drive (see "Recovering from a hard drive failure or corrupted software" on page 413).

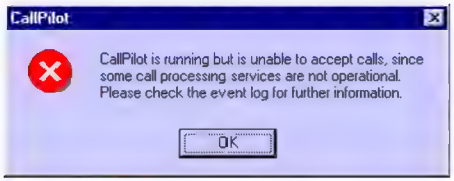
The reinstallation procedure copies CallPilot program files from the CallPilot Server CD-ROM to a CallPilot system running the same version of CallPilot software. This process does not affect system or user data. It recovers most CallPilot program files, but does not recover the operating system, service pack, or, in the case of non-Meridian 1 systems, switch drivers.

## Requirements

- CallPilot Server CD-ROM that has the same version of CallPilot that is running on the CallPilot server
- CallPilot Language CD
- CallPilot PEP CD

## To reinstall the CallPilot server software

**Note:** During the reinstall, the following message might appear. If this message appears, click OK and continue with the reinstall.


CallPilot
CallPilot is running but is unable to accept calls, since some call processing services are not operational. Please check the event log for further information.
OK

1 Log on to the CallPilot server.

2 Insert the CallPilot Server CD-ROM.

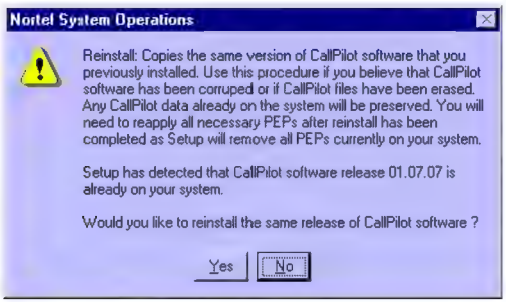
3 Run setup.exe from the root directory of the CallPilot Server CD-ROM.

**Result:** The following window appears:

Nortel System Operations
NORTEL NETWORKS
CallPilot™
Welcome to Nortel Networks CallPilot Setup. This program allows you to install, upgrade, reinstall or uninstall Nortel networks CallPilot software on your computer.
Please refer to the General Release Bulletin before continuing this operation
It is strongly recommended that you exit all Windows programs before running this Setup program.
Select Exit to quit Setup, and then exit any programs you have running. Select Next to continue with Setup program.
WARNING
This program is protected by copyright law and international treaties
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
< Back
Next >
Exit

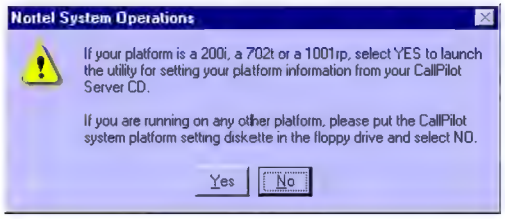
4 Click Next.

**Result:** Setup examines the system and the displays the following window:


Nortel System Operations
Reinstall: Copies the same version of CallPilot software that you previously installed. Use this procedure if you believe that CallPilot software has been corruped or if CallPilot files have been erased. Any CallPilot data already on the system will be preserved. You will need to reapply all necessary PEPs after reinstall has been completed as Setup will remove all PEPs currently on your system.
Setup has detected that CallPilot software release 01.07.07 is already on your system.
Would you like to reinstall the same release of CallPilot software ?
Yes
No

5 Click Yes to reinstall the software.

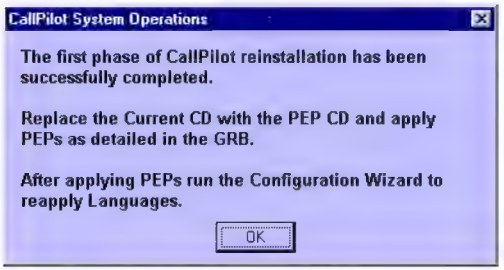
**Result:** You are asked to confirm the platform setting for the server.


Nortel System Operations
If your platform is a 200i, a 702t or a 1001rp, select YES to launch the utility for setting your platform information from your CallPilot Server CD.
If you are running on any other platform, please put the CallPilot system platform setting diskette in the floppy drive and select NO.
Yes
No

6 Click Yes to begin the reinstallation of CallPilot software.

**Result:** Files are copied to the server as part of the reinstall procedure. This can take up to ten minutes. A series of messages appears to indicate the items that are being reinstalled (for example, backup/restore, MMFS).

After the reinstall is complete, you are prompted to reinstall PEPs (if any were present on CallPilot).


CallPilot System Operations
The first phase of CallPilot reinstallation has been successfully completed.
Replace the Current CD with the PEP CD and apply PEPs as detailed in the GRB.
After applying PEPs run the Configuration Wizard to reapply Languages.
OK

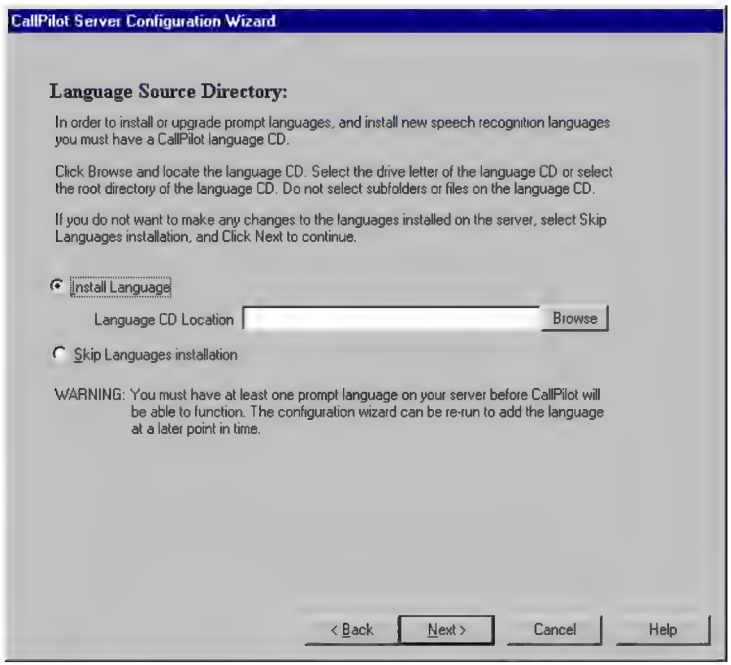
7 Remove the Server CD and insert the CallPilot 1.07 PEP CD. Click OK.

Refer to "Installing PEPs" on page 338 for more information on reinstalling PEPs.

8 After all PEPs are reinstalled, restart the server when prompted.

9 After CallPilot has restarted, run the Configuration Wizard (see Part 3, Chapter 6, "Configuring the server software—common dialog boxes for all switch types").

**10** Leave all current values in the Configuration Wizard dialog boxes as they are until you reach the Language Source Directory dialog box shown here:


CallPilot Server Configuration Wizard
Language Source Directory:
In order to install or upgrade prompt languages, and install new speech recognition languages you must have a CallPilot language CD.
Click Browse and locate the language CD. Select the drive letter of the language CD or select the root directory of the language CD. Do not select subfolders or files on the language CD.
If you do not want to make any changes to the languages installed on the server, select Skip Languages installation, and Click Next to continue.
Install Language
Language CD Location
Browse
Skip Languages installation
WARNING: You must have at least one prompt language on your server before CallPilot will be able to function. The configuration wizard can be re-run to add the language at a later point in time.
< Back
Next >
Cancel
Help

**11** Insert the CallPilot Language CD.

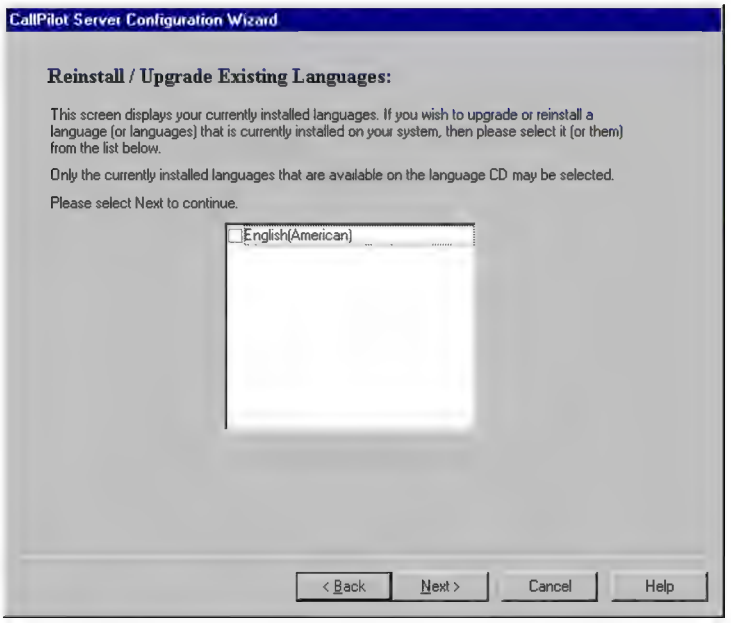
**12** Select Install Language.

**13** Click Browse and select the CD-ROM drive.

**Note:** Select the root level of the CD-ROM. Do not select subfolders or files on the CD. For example, if the CD-ROM is drive Z:, select Z:.

**14** Click Next.

**Result:** The following dialog box appears which lists all currently installed languages:


CallPilot Server Configuration Wizard
Reinstall / Upgrade Existing Languages:
This screen displays your currently installed languages. If you wish to upgrade or reinstall a language (or languages) that is currently installed on your system, then please select it (or them) from the list below.
Only the currently installed languages that are available on the language CD may be selected.
Please select Next to continue.
English(American)
< Back
Next >
Cancel
Help

**15** Select all the languages listed and click Next.

**Result:** The Add Prompt Language dialog box appears.

**16** Click Next to skip this dialog box.

**Result:** The Primary and Secondary Languages dialog box appears.

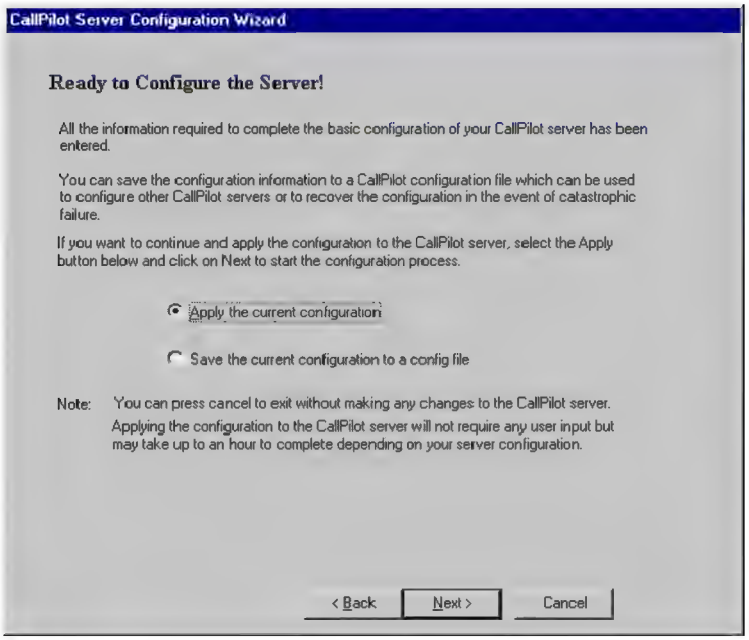
**17** Click Next to accept the currently assigned primary and secondary languages.

**Result:** The Speech Recognition Languages dialog box appears.

**18** Click Next to skip this dialog box.

**Result:** The language installation dialog boxes are completed.

**19** Click Next through the remaining Configuration Wizard dialog boxes until the following dialog box:


CallPilot Server Configuration Wizard
Ready to Configure the Server!
All the information required to complete the basic configuration of your CallPilot server has been entered.
You can save the configuration information to a CallPilot configuration file which can be used to configure other CallPilot servers or to recover the configuration in the event of catastrophic failure.
If you want to continue and apply the configuration to the CallPilot server, select the Apply button below and click on Next to start the configuration process.
Apply the current configuration
Save the current configuration to a config file
Note: You can press cancel to exit without making any changes to the CallPilot server.
Applying the configuration to the CallPilot server will not require any user input but may take up to an hour to complete depending on your server configuration.
< Back
Next >
Cancel

**20** Select Apply the current configuration, and click Next.

**Result:** The configuration changes are applied to the server. This is followed by a prompt to restart to CallPilot.

**Note:** The configuration changes take approximately 10 minutes, plus an additional 10 minutes for each language you are reinstalling.

**21** Click Finish, then click OK to restart CallPilot.

**Result:** The CallPilot software reinstallation is done.

**22** Test your CallPilot channels as described in Part 4 of this Installation binder.

# Reinstalling languages

## Introduction

If the language prompts are not functioning, then you can reinstall them to try and fix the problem.

## Requirements

- a CallPilot Language CD

## To reinstall languages

1. Log on to the CallPilot server.
2. Run the Configuration Wizard as described in Part 3, Chapter 6, "Configuring the server software—common dialog boxes for all switch types."

# Chapter 13

# Recovering from a hard drive failure or corrupted software

## In this chapter


Overview 414

Recovering from a hard drive failure in a RAID system 415

Recovering from a hard drive failure 416

# Overview

## Introduction

If the CallPilot server hard drive crashes or if software becomes corrupt, then you must either reinstall the software or rebuild the hard drive.

**ATTENTION** Contact your distributor if a hard drive recovery is required.

## Reinstalling languages

If only the language prompts are not functioning, then you can reinstall languages to try to fix the problem. See "Reinstalling languages" on page 412.

## Recovering from corrupted software (hard drive is functioning)

If the hard drive is functioning but the CallPilot software appears to be corrupted, you can reinstall the CallPilot server software. This might correct the problem. See "Reinstalling the software (hard drive is functioning)" on page 406. If it does not correct the problem, then you need to rebuild the hard drive.

## Recovering from a hard drive failure in a RAID system

The 1001rp server is a RAID system.

In a RAID system the hard drives are mirrored. When one hard drive fails, its secondary hard drive takes over and there is no system down time. However, you need to replace the faulty hard drive as soon as possible to maintain hard drive redundancy. See "Recovering from a hard drive failure in a RAID system" on page 415.

**Note:** If both the hard drives in a mirrored pair fail, then you need to restore the primary hard drive as described in "Recovering from a hard drive failure" on page 416.

# Recovering from a hard drive failure in a RAID system

## Introduction

The 1001rp server is a RAID system.

In a RAID system the hard drives are mirrored. When one hard drive fails, its secondary hard drive takes over and there is no system down time. However, you need to replace the faulty hard drive as soon as possible to maintain hard drive redundancy.

**Note:** If both the hard drives in a mirrored pair fail, then you need to restore the primary hard drive as described in "Recovering from a hard drive failure" on page 416.

## To recover from a hard drive failure in a RAID system

Follow the instructions in the hardware maintenance chapter to replace the faulty hard drive and rebuild the new hard drive.

# Recovering from a hard drive failure

## Introduction

Contact your distributor if a hard drive fails. Your distributor has access to a utility that is required to restore data from a backup tape. If this is a RAID system and both drives in a mirrored pair fail, then you need to restore from backup tape. If only one drive in a mirrored pair fails, see "Recovering from a hard drive failure in a RAID system" on page 415.

**ATTENTION**

The recovery procedure requires access to a utility that is not available to customers. Distributors should refer to the latest General Release Bulletin on the Nortel Networks web site at http://www.nortelnetworks.com/nic for the latest procedure.

## Requirements

- all software media that came with the CallPilot system
- a complete set of server backups, including
  - a system backup
  - one secondary disk backup for each additional disk drive on your server (for example E:, F:)

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# CallPilot

## Installation and Configuration
## Part 5: 1001rp Server Maintenance and Diagnostics

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